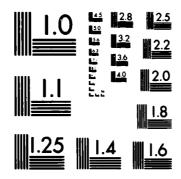
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SELECTIVE AUTOMATIC FIRE EXTINGUISHER FOR CLASS A WITH NOTIFICATION (SAFE CAN). VOLUME II: APPENDICES

CHRISTOPHER W. WILSON THOMAS M. TRUJILLO DENNIS ZALLEN

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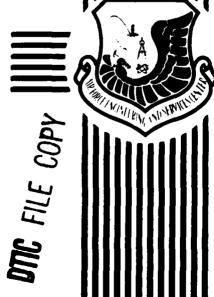
**MAY 1983** 

FINAL REPORT
MAY 1981 - MARCH 1983

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1. REPORT NUMBER	3. RECIPIENT'S CATALOG NUMBER	
ESL-TR-83-07, Vol. II of II	AD - A130331	
4. TITLE (and Subtitle)		5. TYPE OF REPORT & PERIOD COVERED Final Report for Period
SELECTIVE AUTOMATIC FIRE EXTINGUISHE		May 1981 through March 1983
CLASS A WITH NOTIFICATION (SAFE CAN) Volume II: Appendices	,	6. PERFORMING ORG. REPORT NUMBER NMERI - TA3-1
7. AUTHOR(*) Christopher W. Wilson, Thomas M. Tru	44110	B. CONTRACT OR GRANT NUMBER(s)
and Dennis Zallen	J1110	F29601-81-C-0013
9. PERFORMING ORGANIZATION NAME AND ADDRESS New Mexico Engineering Research Inst	ituto	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
Box 25, University of New Mexico	rtuce	PE: 64708F
Albuquerque, New Mexico 87131		JON: 25051014
11. CONTROLLING OFFICE NAME AND ADDRESS	· · · · · · · · · · · · · · · · · · ·	12. REPORT DATE
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Air Force Engineering and Services C		13. NUMBER OF PAGES
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#### PR EFACE

This report was prepared by the New Mexico Engineering Research Institute, University of New Mexico, at the Eric H. Wang Civil Engineering Research Facility, Kirtland Air Force Base, New Mexico, under Contract F29601-81-C-0013, Job for the Engineering and Services Laboratory, Headquar-Order Number 25051014 ters Air Force Engineering and Services Center, (AFESC/RD), Tyndall Air Force Base, Florida.

This report summarizes work done between 7 May 1981 and 31 March 1983. Mr. Joseph L. Walker was the AFESC/RDCS Project Officer.

The authors would like to thank Professor Ahmed Shouman of New Mexico State University for assistance in concept generation; Mr. Glenn Baird of the New Mexico Engineering Research Institute for Fourier spectrum analysis; Ms. Betty Nusser of the New Mexico Research Institute for toxicity analysis; Mr. Dan Kutz, and Mr. George Stewart of the New Mexico Engineering Research Institute for the design and implementation of the acoustic receiver; Mr. Penn Davis, Mr. Vince Cassino, and Mr. Tom Escobedo for technical assistance; and Ms. Herminia Hemmitt for clercial assistance.

This report is published in two volumes. Volume I contains the Technical Report while Volume II contains Appendices A, B, and C.

This report has been reviewed by the Information Office and is releasable to the National Technical Information Service (NTIS). At NTIS it will be available to the general public, including foreign nationals.

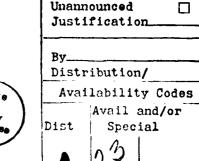
This technical report has been reviewed and is approved for publication.

Project Officer, Fire Technology

FRANCIS B. CROWLEY III, Col, USAF Director, Engineering & Services

Laboratory

HN E. GOIN, Lt Col, USAF Chief, Engineering Research Division



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# APPENDIX A

INDUSTRY CONTACTS AND RELATED PATENTS

#### INDUSTRY CONTACTS

- 1. Alarm Device Mfg., Co., 165 Eileen Way, Syosset, NY 11791.
- 2. Alarm Supply Co., Inc., 12551 Globe Rd., Livonia, MI 48150.
- 3. Atlas Sound, 10 Pomeroy Rd., Parsippany, NJ 07054.
- 4 Chatham Controls Corp., 33 River Rd., Chatham, NJ 07928.
- 5. Chloride Pyrotecton, 333 Lincoln St., Hingham, MA 02043.
- 6. Detector Electronics Corp., 7351 Washington Ave. S., Minneapolis, MN 55435.
- 7. E. I. duPont de Nemours & C., Inc., Wilminton, DE 19898.
- 8. Falcon Safety Products, In., P.O. Box 1071, Mountainside, MJ 07092.
- 9. Federal Signal Corp., 136th & Western Ave., Blue Island, IL 60406.
- 10. Fire-Lite Alarms, P.O. Box 823, New Haven, CT 06504.
- 11. Firemaster, Division of Kiddle, Inc., 435 Forbes Blvd., San Fransisco, CA 94080.
- 12. Henschel Corp., 14 Cedar St., Amesbury, MA 01913.
- 13. Hydraulics Research, Division of Textron, Inc., 10445 Glenoaks Blvd., Pacoima, CA 91331.
- 14. ICI Americas, Inc., Wilmington, DE 19897.
- 15. Kahlenberg Bros., Co., P.O. Box 358, Two Rivers, WI 54241.
- 16. Larse Corp., 4600 Patrick Henry Dr., Santa Clara, CA 95050.
- 17. Lorsted Mfg., Inc., 3300 Airport Way S., Seattle, WA 98134.
- 18. Marine and Industrial Fire Protection, 70 Hudson ST., P.O. Box M-646, Hoboken, NJ 07030.
- 19. Monaco Enterprises, Inc., E. 14820 Sprague Ave., Spokane, WA 99215.
- 20. Moore Systems, Inc., 1730 Technology Dr., San Jose, CA 95110.
- 21. MRL, Inc., 7644 Fulerton Rd., Springfield, VA 22153.
- 22. Mountain West Alarm Supply Co., Box 10780, Phoenix, AZ 85064.
- 23. Peerless Tube Co., 58-76 Locust Ave., Bloomfield, NJ 07003.
- 24. The Peterzell Co., Winter Park, FL 92790.
- 25. Precision Valve Corp., P.O. Box 309, Yonkers, NY 10702.

# INDUSTRY CONTACTS (Concluded)

- 26. The Protectowrie Co., P.O. Box A, Hanover, MA 02339.
- 27. Qualco Products Co., Fanwood, NJ 07023.
- 28. Robert Shaw Controls Co., 3000 S. Highland, Las Vegas, NV 89109.
- 29. Simplex Time Recorder Co., 4206 Lead S.E., Albuquerque, NM 87108.
- 30. Space Age Electronics, Inc., 31 Springhill Ave., Marlborough, MA 01752.
- 31. Unitec, 3990 S. Windermere, Englewood, CO 80110.
- 32. Vanwell Electronics, Inc., 310 Route 17, Upper Saddle River, NJ 07458.
- 33. Walter Kiddle and Co., Inc., Velleville, NJ 07109.
- 34. The W.L. Jenkins Co., 1445 Whipple Rd., S.W., Canton, OH 44708.

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- 3. 2,016,663, Orville E. Current and Arthur J. Earl, Des Moines, Iowa, Chemical Sprinkler Unit, October 8, 1935.
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- 41. 3,907,037, Oronzo L. Linsalato, San Marino, California, Edward Pesout, Jr., Newbury Park, California, Disposable Fire Extinguisher, September 23, 1975.
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# APPENDIX B SAFE CAN ALARM DETECTION CIRCUIT

The circuit shown in the schematic diagram in Figure B-1 was designed to achieve the following objectives:

- 1. Detect audio signals greater than or equal to a predetermined decibel level.
- 2. Detect signals in a small portion of the audiofrequency spectrum while ignoring signals existing outside this spectrum, even if they meet the first criterion.

The circuit must then be able to:

- 3. Verify that the first two conditions exist for a minimum period of time (adjustable--20 seconds typical) and
- 4. Allow the first two conditions to be absent for a very short period of time (adjustable--0.25 second typical).

To accomplish these objectives a microphone is used to detect audio signals. The output of the microphone drives a two-stage audio amplifier (LM3900) whose first stage has a fixed gain of 20; the second-stage gain is variable with a maximum gain of 100, giving the overall gain from input to output (of the amplifier stage) a maximum value of 2000. The amplified output can now be calibrated to represent a specified decibel level.

This amplified output is fed to the input of a frequency-sensitive device (LM567 phase-locked loop) designed to function as a bandpass filter. The center frequency of this filter is adjustable by means of a potentiometer

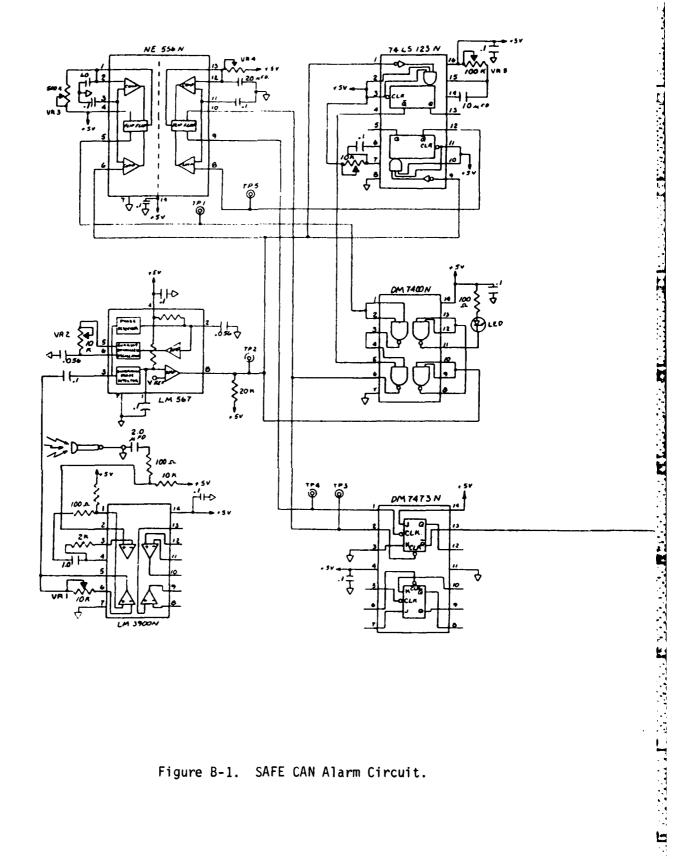
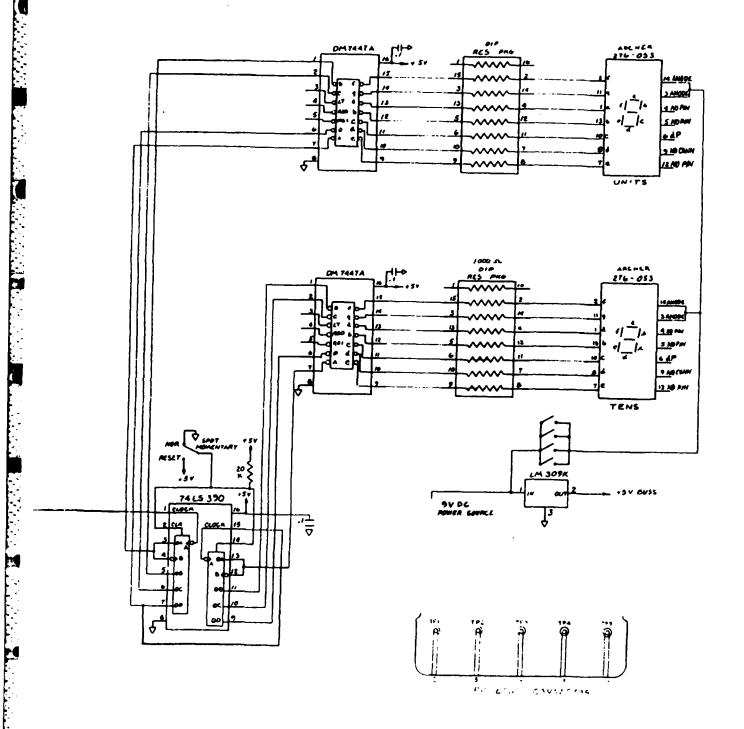


Figure B-1. SAFE CAN Alarm Circuit.



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Figure B-1. Concluded.

(2650 Hz typical), with a varying bandwidth ( $\pm 100~00~Hz$  typical). Up to this point the signals have been in an analog format. The LM567 converts these signals to a digital format used to drive the timing circuitry, changing from a high (H) state when the first two conditions are not met to a low (L) state when a signal of the specified frequency and decibel level is detected (true signal).

When the output of the LM567 goes low, this triggers three timing circuits and a LED visual indicator. There are two short time-constant timers whose outputs are combined logically to form a reset line when a true signal dropout longer than the time specified in Condition 4 (0.25 second typical) is detected. The third timing circuit is used to produce a pulsed input to start the long time-constant (20 seconds typical) timer used to meet Condition 3.

The first short time-constant timer (1/2 NE556) can be adjusted by means of a potentiometer to allow the true signal to drop out for the period of time specified by Condition 4. The output of this timer starts low and switches to high when a true signal is detected. This output is then inverted (1/4 DM7400N, low = high and high = low) to give the proper logic states to drive one input of a NAND gate (1/4 DM7400N).

The other input of the NAND gate is driven by the output of a second short time-constant timer  $(1/2\ 74LS123N)$  whose function is to allow repetitive short-duration dropouts, which would have an absent signal at the end of the previously described timer's cycle.

The long time-constant (1/2 NE556--20 seconds typical) timer is started by the output of a very short (1 ms typical) timer (1/2 74LS123N). This pulsed input to the long time-constant timer is necessary to allow the long time-constant timer to return to its initial state at the end of its timing cycle. The output of this timer changes from low to high for the period of time specified by Condition 3. The reset line switches from a low state to a

high state when a true signal is detected. Finally, the output of the long time-constant timer and the reset line are compared by a J-K flip flop circuit (1/2 LM7473N). If the reset line is high (reflecting that the true signal is -still being detected) when the long time-constant timer switches from high to low (at the end of its completed timing cycle), then an alarm signal is generated, indicating all four conditions have been satisfied.

#### COUNTER CIRCUIT

To keep track of the number of signals generated, a counter was added to the output of the J-K flip flop circuit. The alarm signal is fed to the input of a 74L5390 counter. The counter outputs the count in a binary coded decimal (BCD) format. The BCD signals are decoded by a DM7447A BCD decoder//-segment driver that drives two 7-segment digital displays, enabling the device to count to 99 before resetting itself to 00. A manual reset is also provided.

#### POWER SUPPLY

The circuits are powered by an AC to DC converter that provides 9 volts DC at 300 ma. A LM309K voltage regulator provides the regulated 5 volts DC necessary to power the integrated circuits (the 7-segment displays use 9 volts DC and are not powered by the regulator.

Printed circuit board dip switches are provided to remove power from the digital displays without affecting the count, greatly reducing the amount of current needed from the power supply. For noise reduction, each individual integrated circuit is decoupled from the power supply by a 0.1 uf capacitor.

#### **IMPROVEMENTS**

While the boards do basically what they were originally designed to do, some improvements can be made in operation of these boards.

One event known to exist was the effect of the input voltage expanding the passband of the LM567 chip as it increased. To prevent this, the final design circuit will have a clamping circuit that will prevent the input voltage to the chip from exceeding a predetermined value. Since this voltage is dependent upon a certain decibel level that will be chosen, based on the results of experimental testing of these units, this circuit could not be added at this time.

Another event that was encountered also involved the LM567 integrated circuit. On the edges of the passband the output of this chip would oscillate (i.e., switch from a high state to a low state at a very high rate of speed). Since all the boards exhibited this fault, it was concluded that this is a characteristic of this type of integrated circuit. One improvement is to use a passive bandpass filter prior to this stage, preventing the integrated circuit from operating in a range where it will be oscillating. The use of a different integrated circuit should also be investigated for this function.

A third event noted during the operation of the boards was that the counter, at times, would tend to jump counts (i.e., count from 2 to 5 in less than 1 second, while, theoretically, the minimum time between counts should be the time specified in Condition 3 [20 seconds typical]). This event appears to be caused by the ability of the counter chip to count faster than the time required for the rest of the logic circuits to change state. One possible solution would be to put a capacitor between the input of the counter chip and circuit ground whose time-constant is such that the minimum time between counts must be greater than 1 second (this is still a great deal smaller than the time specified by Condition 3 and should not affect the ability of the board to count true signals).

#### CALIBRATION PROCEDURES

The timing circuits were calibrated using a Tektronix 549 storage oscilloscope as a time reference. The outputs of the various timers were observed and recorded using the scope. The short time-constant timers were set at 0.25 second, and the long time-constant timers were set at 20 seconds. The delay timer was set at approximately 1 ms. The frequency sensitivity of the phase-locked loop was set by adjusting the gain pot of the audio amplifier (LM 3900) to its maximum position. The microphone of the board under test was placed in close proximity to a horn-type loudspeaker connected to a Hewlett Packard audio oscillator. The dial was set at the desired center frequency and the center frequency adjustment potentiometer was set so that the passband was centered around this frequency. The passband was then checked by rotating the frequency selector dial of the audio oscillator and noting upper and lower band edges. If the response was incorrect, the center frequency was again adjusted, and band edge checked (note: band edge was considered to be the point at which the output of the LM 567 started to oscillate).

Finally, the sensitivity of the two-stage audio oscillator was calibrated to correspond to a given decibel reference level. Originally, the decibel reference level was obtained by the placement of the microphones from the boards and the microphone of the B&K sound level meter as close to each other and a horn-type loudspeaker as possible. The loudspeaker was still connected to a Hewlett-Packard audio oscillator, and this time the output level of the audio oscillator was increased until the sound level meter indicated the desired decibel level. The sensitivity of the boards was adjusted so that the output of the bandpass filter went low and stayed low (no oscillation). This procedure was later modified. A test jig was built, placing the reference microphone and the microphone under test 1 foot from the center of the horn. This test jig was then placed in a wooden box, and each board calibrated individually against the B&K sound level meter and the sensitivity set for the same criterion as before. This last method proved to be far superior as it gave repeatable results and the test jiq had the additional capability of allowing the microphone to be set at different interception angles from the reference audio signal.

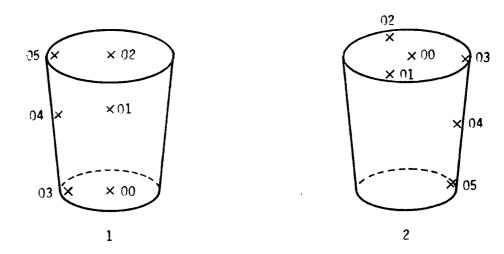
TABLE B-1. CONDITION OF TEST POINTS

Test point No.	True signal present	True signal absent	Comments
1	High	Low	Short time-constant (1/4 second dropout timer)
2	Low	High	True signal detector
3	High	Low	Reset line (stays high 1/4 second after removal of true signal)
4	High	Low	Long time-constant timer (20 seconds)
5	Low	High	Delay timer (low only 1 ms)

# APPENDIX C

# TEST DATA

# TEMPERATURE TESTS



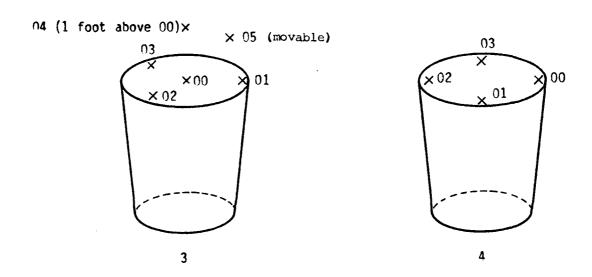


Figure C-1. Temperature versus Time Tests--Thermocouple Arrangements

Temperature Test No. 1
Size Small Can

Fuel Load 12 11" X 15 " sheets

Sensor Arrangement (2)
Time from Ignition to Time "0" 40 seconds

High Peak Temp. 1312 at 24 sec. Sensor 01
Low Peak Temp. 337 at 12 sec. Sensor 02

<b>\</b>						
00	01	02	03	04	05_	
194	112	203	131	83	57	
755	356	260	226	120	58	
957	658	337	327	178	60	
878	1118	281	628	694	69	
816	1312	229	700	1035	127	
789	1275	179	701	1235	187	
671	1052	151	695	1159	301	
585	1033	140	646	1203	577	
559	957	152	680	1183	699	•
509	974	181	659	1183	810	
457	783	183	553	1020	908	
377	748	180	510	870	1155	
319	540	155	424	670	1293	
263	442	151	371	494	1174	
238	367	137	311	422	1061	
	194 755 957 878 816 789 671 585 559 509 457 377 319 263	194     112       755     356       957     658       878     1118       816     1312       789     1275       671     1052       585     1033       559     957       509     974       457     783       377     748       319     540       263     442	194       112       203         755       356       260         957       658       337         878       1118       281         816       1312       229         789       1275       179         671       1052       151         585       1033       140         559       957       152         509       974       181         457       783       183         377       748       180         319       540       155         263       442       151	194       112       203       131         755       356       260       226         957       658       337       327         878       1118       281       628         816       1312       229       700         789       1275       179       701         671       1052       151       695         585       1033       140       646         559       957       152       680         509       974       181       659         457       783       183       553         377       748       180       510         319       540       155       424         263       442       151       371	194       112       203       131       83         755       356       260       226       120         957       658       337       327       178         878       1118       281       628       694         816       1312       229       700       1035         789       1275       179       701       1235         671       1052       151       695       1159         585       1033       140       646       1203         559       957       152       680       1183         509       974       181       659       1183         457       783       183       553       1020         377       748       180       510       870         319       540       155       424       670         263       442       151       371       494	194       112       203       131       83       57         755       356       260       226       120       58         957       658       337       327       178       60         878       1118       281       628       694       69         816       1312       229       700       1035       127         789       1275       179       701       1235       187         671       1052       151       695       1159       301         585       1033       140       646       1203       577         559       957       152       680       1183       699         509       974       181       659       1183       810         457       783       183       553       1020       908         377       748       180       510       870       1155         319       540       155       424       670       1293         263       442       151       371       494       1174

Temperature Test No. 2

Size Small Can

Fuel Load 12 sheets

Sensor Arrangement (2)

Time from Ignition to Time "0" 30 seconds

High Peak Temp. 1412 at 108 sec. Sensor 05

Low Peak Temp. 452 at 6 sec. Sensor 02

Sen						
Senso Time	00	01	02	03	04	05
0	161	102	263	38	68	60
6	153	106	452	107	74	60
12	180	127	355	110	79	61
18	260	353	266	103	85	61
24	811	744	261	<b>63</b> 3	177	62
30	940	1047	362	1170	430	63
36	913	1143	380	1269	748	80
42	1179	1300	282	1055	761	93
48	1033	1151	315	1084	940	177
54	946	1076	279	1087	1113	249
60	974	1206	320	925	990	318
66	947	912	276	905	995	354
72	935	968	304	862	1066	434
78	951	920	331	929	1012	645
84	863	978	325	943	1071	813
90	814	933	<b>29</b> 8	831	973	1078
96	630	732	252	670	907	1153
102	536	758	251	559	759	1388
108	426	605	245	463	563	1412
114	346	488	231	389	447	1262
120	287	391	220	<b>33</b> 8	363	1074
126	225	297	214	277	292	729

		re Test		3					
Size	Sma	111 Can							
Fuel	Load	12	sheets	3					
Senso	or Arı	angeme	nt	(2)					
Time	from	Igniti	on to	Time	"0"		9 se	conds	
High	Peak	Temp.	1274		at_	42	sec.	Sensor	03
Low	Peak	Temp.	478	3	at_	48	sec.	Sensor	02

Sensor							
Time	00	01	02	03	04	05	
0	351	60	60	61	61	61	
6	1219	62	66	64	61	61	
12	1510	65	71	67	62	61	
18	1598	69	76	77	61	61	
24	1207	137	117	115	63	61	
30	854	268	213	211	69	61	
36	886	395	276	970	71	59	
42	1048	815	424	1274	208	63	
48	1011	1226	478	1223	669	116	
54	1114	1174	471	1077	874	283	
60	1028	1093	444	1152	<b>96</b> 8	236	
66	843	913	390	946	1012	301	
72	864	1165	400	915	1091	531	
78	886	1172	385	855	1071	650	
84	1021	1249	369	818	1107	793	
90	920	1185	374	764	978	934	
96	718	972	349	603	709	784	
102	587	721	318	493	578	680	
108	454	552	306	439	475	595	

Tempe	eratui	re Test	No.	4					
Size		Sma1	1 can						~
Fuel	Load	12 s	heets						
Senso	or Arı	rangeme	nt(	(2)				·	
Time	from	Igniti	on to	Time	"0"		21 s	econds	
High	Peak	Temp.	1204		at_	24	sec.	Sensor	04
Low	Peak	Temp.	406		at_	36	sec.	Sensor	02

00	01	02	03	04	05	
204	98	203	138	83	69	
671	283	296	379	165	73	
1033	650	356	579	843	94	
1030	771	383	670	938	122	
1032	939	380	668	1204	159	
1077	976	<b>39</b> 8	732	1145	227	
1132	953	406	788	1287	291	
1068	892	400	824	1098	339	
986	905	380	917	1022	375	
921	907	310	840	1060	434	
955	813	338	791	967	492	
1017	781	314	802	858	573	
951	794	286	670	710	751	
753	622	242	611	707	930	
638	578	215	483	480	990	
486	502	206	410	431	847	
426	420	180	365	371	765	
356	361	163	351	371	703	
	204 671 1033 1030 1032 1077 1132 1068 986 927 955 1017 951 753 638 486 426	204 98 671 283 1033 650 1030 771 1032 939 1077 976 1132 953 1068 892 986 905 927 907 955 813 1017 781 951 794 753 622 638 578 486 502 426 420	204         98         203           671         283         296           1033         650         356           1030         771         383           1032         939         380           1077         976         398           1132         953         406           1068         892         400           986         905         380           927         907         310           955         813         338           1017         781         314           951         794         286           753         622         242           638         578         215           486         502         206           426         420         180	00         01         02         03           204         98         203         138           671         283         296         379           1033         650         356         579           1030         771         383         670           1032         939         380         668           1077         976         398         732           1132         953         406         788           1068         892         400         824           986         905         380         917           927         907         310         840           955         813         338         791           1017         781         314         802           951         794         286         670           753         622         242         611           638         578         215         483           486         502         206         410           426         420         180         365	00         01         02         03         04           204         98         203         138         83           671         283         296         379         165           1033         650         356         579         843           1030         771         383         670         938           1032         939         380         668         1204           1077         976         398         732         1145           1132         953         406         788         1287           1068         892         400         824         1098           986         905         380         917         1022           927         907         310         840         1060           955         813         338         791         967           1017         781         314         802         858           951         794         286         670         710           753         622         242         611         707           638         578         215         483         480           486         502	00         01         02         03         04         05           204         98         203         138         83         69           671         283         296         379         165         73           1033         650         356         579         843         94           1030         7/1         383         670         938         122           1032         939         380         668         1204         159           1077         976         398         732         1145         227           1132         953         406         788         1287         291           1068         892         400         824         1098         339           986         905         380         917         1022         375           927         907         310         840         1060         434           955         813         338         791         967         492           1017         781         314         802         858         573           951         794         286         670         710         751

Tempe	eratui	re Test N	o5				
Size	Sı	mall can					
Fuel	Load	12 sh	eets				
Senso	or Arı	rangement	(2)				
Time	from	Ignition	to Time	"0"	12_se	c	
High	Peak	Temp	1328	at	30 sec.	Sensor	01
Low	Peak	Temp	369	at	18 sec.	Sensor	_02_

Senso		_					
Time	00	01	02_	03	04	05	
0	653	85	85	<b>9</b> 8	69	68	
6	972	781	160	733	390	122	
12	1054	1118	308	927	593	358	
18	1019	1204	369	996	690	527	
24	882	1302	286	862	889	896	
30	848	1328	300	658	764	1065	
36	810	1177	320	642	814	1209	
42	709	1046	318	598	822	1169	
48	680	812	267	631	763	1189	
54	589	896	251	502	796	950	
60	530	961	238	497	685	698	
66	440	918	264	439	700	643	
72	352	757	276	402	594	522	

Temperature Test No. 6										
Size	Sr	nall Ca	ın							
Fuel	Load	12 st	eets							
Senso	Sensor Arrangement (2)									
Time	from	Igniti	on to Time	"0"	9 seco	nds				
High	Peak	Temp.	1331	at_	90 sec.	Sensor	04			
Low	Peak	Temp.	563	at_	96 sec.	Sensor	05			

Sensor							
Time	00	01	02	03	04	05	
0	377	58	60	65	56	55	
6	773	61	61	69	56	55	
12	711	70	70	85	56	55	
18	750	80	72	108	56	55	
24	761	119	79	129	57	55	
30	902	191	107	206	59	55	
36	1180	690	410	409	73	55	
42	1127	974	565	612	113	56	
48	1095	1128	679	<b>66</b> 8	213	59	
54	992	1028	782	774	331	65	
60	960	1107	809	664	654	82	
66	1014	1084	687	490	826	93	
72	1108	1089	609	581	1035	108	
78	978	1075	<b>62</b> 8	534	1153	145	
84	810	932	609	496	1285	251	
90	666	814	576	434	1331	497	
96	471	697	397	390	816	563	
102	406	58 <b>5</b>	337	325	696	526	
108	345	494	294	266	599	461	
114	291	428	269	226	448	411	

Temperature Test No. 7

Size Small Can

Fuel Load 12 sheets

Sensor Arrangement (2)

Time from Ignition to Time "0" 18 seconds

High Peak Temp. 1209 at 18 sec. Sensor 00

Low Peak Temp. 398 at 24 sec. Sensor 02

So	_						
Senso. Time	00	01	02	03	04	05	
0	377	141	125	370	351	62	
6	1089	650	111	728	493	73	
12	1195	932	178	770	628	87	
18	1209	1060	287	633	8 <b>9</b> 8	96	
24	998	1069	398	602	1055	100	
30	897	998	341	547	861	104	
36	954	1015	374	473	654	127	
42	898	1005	315	438	479	236	
48	730	856	385	402	452	315	
54	657	728	287	403	502	388	
60	<b>49</b> 8	655	225	385	636	423	
66	434	604	208	351	577	457	
72	399	622	163	421	699	499	
78	368	558	141	368	526	486	
84	330	485	120	324	415	503	
90	297	419	134	297	325	460	
102	200	269	120	214	218	369	

Temperature Test No. 8								
Size Small can								
Fuel Load 12 sheets								
	Sensor Arrangement (2)							
Time from Ignition to Time	"0" 9 seconds							
High Peak Temp. 1418	at <u>24 sec.</u> Sensor <u>oo</u>							
Low Peak Temp. 448	at <u>24 sec.</u> Sensor <u>02</u>							

Sensor						
Time	00	01	02	03	04	05
0	112	57	56	57	57	64
6	736	60	57	60	57	63
12	1233	106	65	78	59	63
18	1289	285	192	124	65	63
24	1418	669	448	348	76	63
30	1192	1049	343	8 <b>6</b> 8	150	64
36	1101	1001	319	1028	286	66
42	1244	958	342	834	431	75
48	1134	1031	340	810	789	<b>9</b> 7
54	930	1019	315	809	905	225
60	1030	1136	306	776	878	527
66	<b>9</b> 88	1192	303	624	740	693
72	1074	1082	266	501	588	587
78	853	916	330	404	491	487
84	746	735	274	343	406	399
90	511	637	200	279	312	305
96	403	574	183	250	263	271
102	349	495	162	231	235	238

Temperature Test No. 9

Size Small Can

Fuel Load 12 sheets

Sensor Arrangement (2)

Time from Ignition to Time "0" 15 seconds

High Peak Temp. 1268 at 12 sec. Sensor 00

Low Peak Temp. 328 at 54 sec. Sensor 02

Sensor				<del></del>			
Time	00	01	02	03	04	05	
0	603	203	144	114	103	67	
6	932	434	165	480	191	75	
12	1268	934	213	648	356	88	
18	1173	1202	252	606	673	94	
24	1226	1245	261	562	1124	98	
30	1003	1319	275	491	902	111	
36	1038	1255	296	439	682	271	
42	939	1141	300	415	647	645	
48	967	1216	332	382	510	719	
54	849	1139	328	360	441	606	
60	678	848	327	303	380	519	
66	520	685	312	271	305	429	
72	395	526	292	241	256	373	
78	278	351	256	212	213	285	

Temperature Test No. 10 Size Small Can								
				 :				
Fuel Load 12 sheets Sensor Arrangement (2)								
			on to Time	"0"	6 seco	nds		
High	Peak	Temp.	1461	_at	78 sec.	Sensor	_05_	
Low	Peak	Temp.	785	at_	36 sec.	Sensor	02	

Sensor	<u> </u>				·· <del>···</del>		
Time	00	01	02	03	04	05	
0	651	84	76	60	61	66	
6	905	263	220	438	121	71	
12	1227	463	528	951	180	82	
18	1227	835	709	824	457	90	
24	1140	938	710	923	636	99	
30	1011	948	764	1002	900	103	
36	947	952	785	915	1272	120	
42	941	823	733	886	1315	135	
48	793	769	686	710	1118	175	
54	670	689	546	715	1095	200	
60	740	629	507	575	873	257	
66	734	640	515	490	707	482	
72	691	720	482	<b>47</b> 8	787	1392	
78	625	675	466	382	593	1461	
84	570	610	446	346	505	14 ?8	
90	524	385	318	406	500	1249	
100	338	362	265	237	290	674	

Temperature Test No. 11 Liquid Fire (Kerosene)

Size Small Can

Fuel Load 40 ml

Sensor Arrangement (2)

Time from Ignition to Time "0" 24 seconds

High Peak Temp. 861 at 6 sec Sensor 05

Low Peak Temp. 326 at 12 sec Sensor 03

Sensor	<u> </u>						
Time	00	01	02	03	04	05	
0	135	110	98	84	154	209	
6	262	225	127	247	318	861	
12	499	357	260	326	383	841	
18	<b>59</b> 8	397	325	331	371	706	
24	567	372	389	278	341	522	
30	452	323	329	247	300	425	
36	342	254	248	176	259	329	

Temperature Test No. 12 Liquid Fire (Alcohol)

Size Small Can

Fuel Load 40 ml

Sensor Arrangement (2)

Time from Ignition to Time "0" 3 seconds

High Peak Temp. 1032 at 24 sec Sensor 05

Low Peak Temp. 138 at 24 sec Sensor 02

Sensor	<u></u>						
Time	00	01	02	03	04	05	
0	55	5 <b>5</b>	54	56	62	147	
6	135	178	84	152	455	758	
12	231	272	98	230	451	853	
18	241	314	114	254	470	1113	
24	376	376	138	256	556	1032	
30	366	422	136	338	758	953	
36	386	419	152	305	550	798	
42	316	401	145	252	555	710	
48	233	343	122	188	447	708	
54	187	267	101	148	323	450	

13 Liquid Fire (Naptha) Temperature Test No. \_ Small Can Size \_\_ 40 m1 Fuel Load \_ (2) Sensor Arrangement Time from Ignition to Time "0" 0 seconds High Peak Temp. 991 Sensor <u>05</u> at\_ 54 Low Peak Temp. \_ 402 72 Sensor <u>02</u> at

Sensor							
Time	00	01	02	03	04	05	
0	76	59	67	59	59	60	
6	76	67	70	63	61	72	
12	83	76	68	66	62	75	
18	85	85	67	67	62	75	
24	100	95	66	75	67	86	
30	111	102	70	83	71	107	
36	196	152	109	140	108	505	
42	304	246	91	224	155	663	
48	371	322	185	258	178	780	
54	352	328	151	322	232	991	
60	606	493	193	420	311	921	
66	648	561	334	475	384	834	
72	645	541	402	470	407	680	
78	489	472	360	331	386	444	
84	370	365	262	256	359	328	

Temperature Test No. 52

Size Large Can

Fuel Load 12 sheets

Sensor Arrangement (3)

Time from Ignition to Time "0" 0 sec.

High Peak Temp. 781 at 25 sec. Sensor 01

Low Peak Temp. 461 at 35 sec. Sensor 02

Sen	_						
Sensor Time	00	01	02	03	04_	05	
0	82	75	76	73	72	71	
5	112	75	97	74	93	70	
10	164	150	98	96	133	85	
15	409	372	96	307	290	333	
20	577	685	291	489	479	529	
25	646	781	452	488	511	609	
30	706	780	368	614	551	648	
35	688	732	461	520	457	548	
40	628	689	394	476	414	498	
45	597	602	438	484	378	464	
50	539	623	410	435	353	427	
55	512	593	374	454	348	389	
60	467	528	329	434	317	355	

Temperature Test	No5	3				
Size Large Ca						
Fuel Load 12 sh	eets					
Sensor Arrangemen	t <u>(3)</u>			<u> </u>		
Time from Ignitio	n to Time	"0"		30 sec	conds	
High Peak Temp	817°	at_	35	sec.	Sensor	01_
Low Peak Temp	480°	at_	50	sec.	Sensor	02

00	01	02	03	04	05	
87	82	82	80	73	73	
97	81	116	78	83	85	
104	79	183	77	84	121	
106	81	185	128	97	137	
164	112	157	236	139	137	
305	431	189	323	312	303	
612	602	302	417	424	441	
701	817	374	435	542	611	
764	776	396	437	533	569	
762	694	420	488	471	519	
676	567	480	568	403	414	
641	585	. 412	499	442	418	
673	662	420	501	451	481	
	87 97 104 106 164 305 612 701 764 762 676 641	87 82 97 81 104 79 106 81 164 112 305 431 612 602 701 817 764 776 762 694 676 567 641 585	87     82     82       97     81     116       104     79     183       106     81     185       164     112     157       305     431     189       612     602     302       701     817     374       764     776     396       762     694     420       676     567     480       641     585     412	87     82     82     80       97     81     116     78       104     79     183     77       106     81     185     128       164     112     157     236       305     431     189     323       612     602     302     417       701     817     374     435       764     776     396     437       762     694     420     488       676     567     480     568       641     585     412     499	87     82     82     80     73       97     81     116     78     83       104     79     183     77     84       106     81     185     128     97       164     112     157     236     139       305     431     189     323     312       612     602     302     417     424       701     817     374     435     542       764     776     396     437     533       762     694     420     488     471       676     567     480     568     403       641     585     412     499     442	87         82         82         80         73         73           97         81         116         78         83         85           104         79         183         77         84         121           106         81         185         128         97         137           164         112         157         236         139         137           305         431         189         323         312         303           612         602         302         417         424         441           701         817         374         435         542         611           764         776         396         437         533         569           762         694         420         488         471         519           676         567         480         568         403         414           641         585         412         499         442         418

Temperature Test No. 54Size Large Can

Fuel Load 12 sheets

Sensor Arrangement (3)

Time from Ignition to Time "0" 0 seconds.

High Peak Temp. 798° at 30 sec. Sensor 00

Low Peak Temp. 449° at 50 sec. Sensor 02

Sensor	·						
Time	00	01	02	03	04	05	
0 (Sec)	78	79	79	79	74	71	
5	84	79	85	80	83	70	
10	98	77	131	112	101	106	
15	179	80	161	243	191	181	
20	376	252	192	428	312	362	
25	609	389	185	563	406	464	
30	798	592	227	551	459	467	
35	727	620	321	580	457	546	
40	759	584	354	693	449	622	
45	712	550	427	674	429	560	
50	647	594	449	512	380	472	
55	<b>62</b> 8	558	416	522	384	488	
60	513	560	371	549	389	503	
65	538	523	323	486	344	437	

Temperature Test No. \_\_\_55

Size \_\_\_Large Can

Fuel Load \_\_\_36 sheets

Sensor Arrangement \_\_\_(3)

Time from Ignition to Time "0" \_\_\_\_10 seconds

High Peak Temp. \_\_\_\_1332° at \_\_\_35 sec. Sensor \_\_\_00

Low Peak Temp. \_\_\_\_598° at \_\_\_60 sec. Sensor \_\_\_02

<u> </u>						
00	01	02	03	04	05	
78	76	75	75	78	78	
131	175	79	236	207	352	
591	781	101	430	604	677	
1211	908	262	719	614	611	
1262	955	339	635	628	728	
1254	983	472	564	582	633	
1230	1001	520	618	530	569	
1332	1134	528	545	590	448	
1263	1248	590	604	700	529	
1217	1307	516	713	790	781	
1167	1286	584	709	817	906	
1057	1305	559	696	774	823	
1033	1274	598	761	807	879	
1017	1203	591	741	785	598	
984	1089	573	755	654	582	
945	1084	544	638	656	494	
	78 131 591 1211 1262 1254 1230 1332 1263 1217 1167 1057 1033 1017 984	78 76 131 175 591 781 1211 908 1262 955 1254 983 1230 1001 1332 1134 1263 1248 1217 1307 1167 1286 1057 1305 1033 1274 1017 1203 984 1089	78       76       75         131       175       79         591       781       101         1211       908       262         1262       955       339         1254       983       472         1230       1001       520         1332       1134       528         1263       1248       590         1217       1307       516         1167       1286       584         1057       1305       559         1033       1274       598         1017       1203       591         984       1089       573	78         76         75         75           131         175         79         236           591         781         101         430           1211         908         262         719           1262         955         339         635           1254         983         472         564           1230         1001         520         618           1332         1134         528         545           1263         1248         590         604           1217         1307         516         713           1167         1286         584         709           1057         1305         559         696           1033         1274         598         761           1017         1203         591         741           984         1089         573         755	78       76       75       75       78         131       175       79       236       207         591       781       101       430       604         1211       908       262       719       614         1262       955       339       635       628         1254       983       472       564       582         1230       1001       520       618       530         1332       1134       528       545       590         1263       1248       590       604       700         1217       1307       516       713       790         1167       1286       584       709       817         1057       1305       559       696       774         1033       1274       598       761       807         1017       1203       591       741       785         984       1089       573       755       654	78         76         75         75         78         78           131         175         79         236         207         352           591         781         101         430         604         677           1211         908         262         719         614         611           1262         955         339         635         628         728           1254         983         472         564         582         633           1230         1001         520         618         530         569           1332         1134         528         545         590         448           1263         1248         590         604         700         529           1217         1307         516         713         790         781           1167         1286         584         709         817         906           1057         1305         559         696         774         823           1033         1274         598         761         807         879           1017         1203         591         741         785         598

Temperature Test No.  $\_56$ Size  $\_Large\ Can$ Fuel Load  $\_60\ sheets$ Sensor Arrangement  $\_(3)$ Time from Ignition to Time "0"  $\_0\ seconds$ High Peak Temp.  $\_1623^\circ$  at  $70\ sec.$  Sensor  $\_01$ Low Peak Temp.  $\_855^\circ$  at  $\_40\ sec.$  Sensor  $\_02$ 

Sensor	_					•	
Time	00	01	02	03	04	05	
0	73	72	73	72	73	72	
5	133	76	79	74	73	72	
10	160	75	111	75	76	73	
15	378	77	157	208	94	529	
20	510	329	307	828	516	902	
25	881	870	477	794	693	920	
30	893	1188	741	856	652	755	
35	906	1209	827	947	610	663	
40	944	1269	855	1049	531	651	
45	933	1239	819	1137	518	<b>59</b> 8	
50	1051	1285	619	1052	499	512	
55	1109	1199	610	1027	592	686	
60	1144	1393	650	1118	705	772	
65	1146	1543	557	950	1073	1125	
70	1132	1623	540	891	1256	1434	
75	1185	1565	518	774	1227	1385	
80	1131	1483	618	738	1096	1092	
85	1067	1311	496	718	1041	1004	

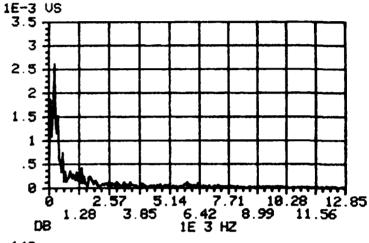
Temperature Test No.	57					
Size <u>Large Can</u>	Size Large Can					
Fuel Load 6 reams	s paper					
Sensor Arrangement	(3)	<del></del>		·		
Time from Ignition t	to Time	"0"	30 sec	onds		
High Peak Temp.	1009°	at 85	sec.	Sensor	00	
Low Peak Temp.	381°	at 105	sec.	Sensor	02	

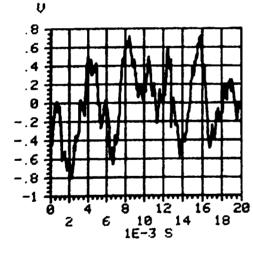
Sensor	<u></u>			<del>-</del>			
Time	00	01	02	03	04	05	
0	94	104	93	78	73	74	
5	104	114	90	79	78	75	
10	116	111	91	110	82	75	
15	137	98	143	135	85	80	
20	185	165	111	188	131	199	
25	233	250	122	208	163	202	
30	324	250	170	251	150	212	
35	423	285	152	250	164	243	
40	496	303	149	210	155	284	
45	482	354	163	209	143	277	
50	448	342	163	221	149	267	
55	444	362	217	204	147	295	
60	596	418	232	493	166	534	
65	665	566	271	631	182	560	
70	846	622	348	605	207	530	
80	929	664	296	706	265	546	
85	1009	698	351	707	320	425	
90	992	801	340	645	465	401	
95	995	772	348	672	388	375	
100	938	816	317	632	327	371	
105	822	749	381	551	366	308	
110	783	742	347	552	365	301	
115	773	704	303	519	323	272	
120	739	708	311	436	305	261	

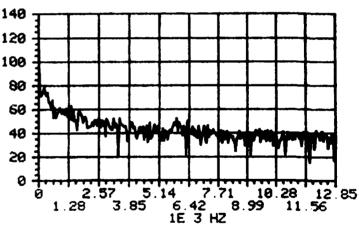
Noise Test No. 1
Facility: AFWL Computer Ctr.

Location: NW Corner

Meter Setting 70 dB
Meter Reading 68 dB



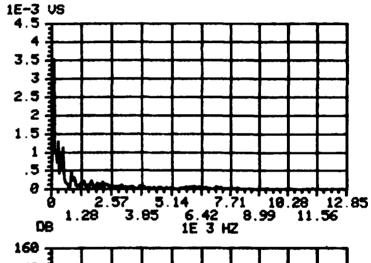


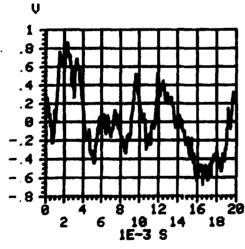


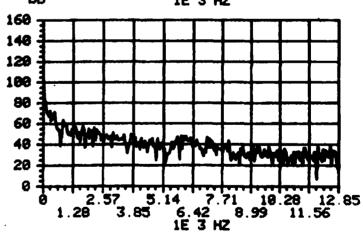
Noise Test No. 1
Facility: AFWL Computer Ctr.

Location: NW Corner

Meter Setting 70 dB
Meter Reading 68 dB







Noise Test No. 1 1E-3 VS Facility: AFWL Computer Ctr. 2.5 Location: NW Corner 2 đв Meter Setting 70 Meter Reading 68 1.5 1 . 5 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB 140 .8 120 .6 100 .4 80 . .2 0 60 -.2 40 20 -.6 Ø - 8 12 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 20 16 2 10 1E-3 S 6

Noise Test No. 2
Facility: AFWI Computer Ctr. 1E-3 US Location: NE Corner, 7 Feet from Printer dB .8 -Meter Setting \_\_\_\_70 dB Meter Reading \_ .6 .4 .2 14 7.71 10.28 12.85 6.42 8.99 11.56 1E 3 HZ DB 1E-3 V 140 500 120 300 100 100 80 60 -100 40 -300 20 0 -500 -8 12 16 20 10 14 18 1E-3 S 2.57 5.14 7.71 10.28 1.28 3.85 6.42 8.99 11 1E 3 HZ 28 12 85 11 56 2

Noise Test No. 2 1E-6 US Facility: AFWI Computer Ctr. 800 700 Location: NE Corner, 7 Feet from Printer 600 Meter Setting 70 dB 500 Meter Reading \_ dB 400 300 200 100 0 4 7.71 10.28 12.85 6.42 8.99 11.56 1E 3 HZ 7 5.1 3.85 1E-3 V DB 600 140 120 400 100 200 80 0 60 -200 40 -400 20 -699 0 12 16 10 14 18 1E-3 S 2.57 5.14 7.71 10 1.28 3.85 6.42 8.99 1E 3 HZ

10.28 12.85 99 11.56

2

6

Noise Test No. 2 1E-3 US Facility: AFWL Computer Ctr. Location: NF Corner, 7 Feet from Printer Meter Setting dB .8 dΒ Meter Reading \_ .6 4 7.71 10.28 12.85 6.42 8.99 11.56 1E 3 HZ 1E-3 V 08 600 160 140 400 120 200 100 88 60 -200 40 -400 <del>].</del> 9 20 -2.57 5.14 7.71 1.29 3.85 6.42 8 1E 3 HZ 8 12 10 14 1E-3 S 1 10 28 12 85 8.99 11 56 6 2 18

Noise Test No. 2 1E-3 US Facility: AFWL Computer Ctr. 2.5 Location: NE Corner, 7 Feet from Printer
tting 70 dB
ading 71 dB Meter Setting 1.5 Meter Reading 1 . 5 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 1E-3 U 08 600 140 400 120 100 200 0 80 -200 68 -400 40 -600 20 -809 0 8 12 16 20 10 14 18 1E-3 S 2.57 5.14 7.71 1.28 3.85 6.42 8 1E.3 HZ 1 10 28 12 85 8.99 11 56

Noise Test No. 2 1E-6 VS 800 AFWI Computer Ctr. Facility: 700 Location: NF Corner, 7 Feet 600 from Printer dB Meter Setting 500 dB Meter Reading 400 300 200 100 .14 10.28 15.42 20.56 25.7 7.71 12.85 17.99 23.13 1E 3 HZ OB 1E-3 V 160 600 140 400 120 200 100 80 60 -200 40 -400 20 -609 <del>]</del> 0 4 5.14 10.28 15.4 2.57 7.71 12.85 1E 3 HZ 4 6 5 1E-3 S 8 9 1 3

Noise Test No. 2 1E-6 US Facility: AFWL Computer Ctr. Location: NE Corner, I Feet from Printer Meter Setting 70 Meter Reading 71 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 1E-3 U · -100 -200 -300 -466 5.14 10.28 15.42 20.56 25.7 2 57 7.71 12.85 17.99 23 13 1E 3 HZ Ġ ້ 5 1E-3 ຣ 

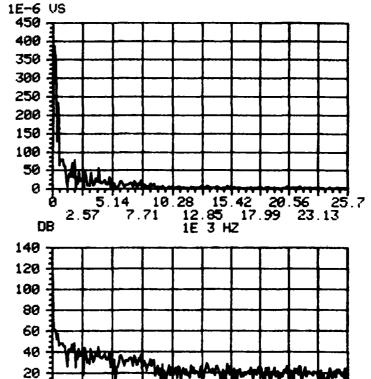
Noise Test No. 2 1E-6 VS Facility: 450 AFWL Computer Ctr. 400 Location: NE Corner, 7 Feet 350 from Printer 300 Meter Setting dB 250 Meter Reading dB 200 150 100 50 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 1E-3 V 160 600 140 400 120 200 100 80 0 60 -200 40 -490 20 Ø -600 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 10 5 1E-3 S 9 3 1

1E-3 U  DB  2.57  7.71  12.85  17.99  23.13  140  120  100  100  40  40  40  40  40  40  40	Noise Fest No. <u>3</u> Facility: <u>AFWL Computer Ctr</u>	1E-6 US
Meter Setting 70 dB 400 300 200 100 400 300 200 100 400 300 200 100 400 300 300 200 100 400 300 300 300 300 300 300 300 300 3	Location: SW Corner	
1E-3 U  DB  100  100  100  100  100  100  100	The color residently and an include	500
100 d		-25 1 1 1 1 1 1 1 1
1E-3 U  DB  1E-3 HZ  DB		
1E-3 U  1E-3 U  100  100  100  100  100  100  100  1		
140 120 100 100 100 100 100 100 10		0 5.14 10.28 15.42 20.56 25.7
120 100 100 100 100 100 100 100		
100 100 100 100 100 100 100 100	400	
200 100 80 40 40 20 -100 -200 20 5, 14, 10, 28, 15, 42, 20, 56, 25, 7	700 1 1 1 1 1 1 1 1 1 1 1	
-100 -200 -200 -200 -200 -200 -200 -200	300	
-100 -200 0 2 4 6 8 10 0 5 14 10 28 15 42 20 56 25 7	7_1	100
-100 -200 9 2 4 6 8 10 0 5.14 10.28 15.42 20.56 25.7	200	100
-200 -201 -201 -201 -201 -201 -201 -201	200	100 80 60 40
9 2 4 6 8 10 0 5.14 10.28 15.42 20.56 25 7	200	100 80 60 40 20
1 3 5 7 9 2.57 7 71 12 85 17 99 23 13 1 1E-3 5 1E 3 HZ	200	100 80 60 40 20 0

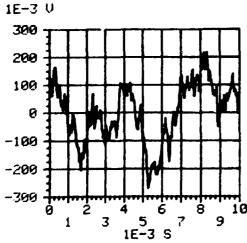
Noise Test No. 3
Facility: AFWL Computer Ctr.

Location: SW Corner

Meter Setting 70 dB
Meter Reading 69 dB



5.14 10 28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23 13 1E 3 HZ



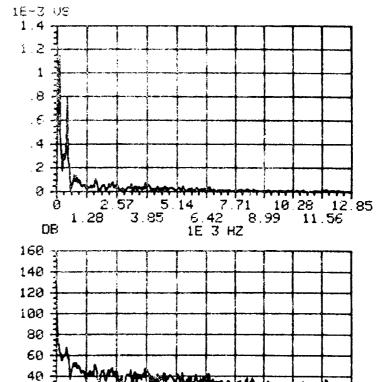
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-20

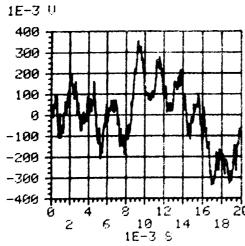
Noise Test No. 1993	1E-5 US
Facility: AFWL Computer utr.	700
Location: <u>SW Corner</u>	588
Meter Setting ZQ dB Meter Reading 69 dB	400 300 200 100
1E-3 V	0 5 14 10 28 15 42 20 56 25 7 2 57 7 71 12 85 17 99 23 13 DB 1E 3 HZ
500 400 300	140
200	100 3 80 60 3
-100 -200	29 W W W W W W W W W W W W W W W W W W W
-300 <del>1   1   2   4   6   8   10   10   10   10   10   10   10 </del>	0 5.14 10.28 15 42 20 56 25 7 2.57 7.71 12 85 17 99 23 13 1E 3 HZ

Noise Test No. 3 1E-6 US Facility: 500 AFWL Computer Ctr. Location: SW Conner 400 dB 300 Meter Reading 69 200 100 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 1E-3 U 140 400 120 300 100 200 80 100 -60 0 40 -100 20 -200 0 -300 <del>].</del> -20 -5.14 10.28 15.42 20 56 25.7 2 57 7.71 12.85 17.99 23 13 1E 3 HZ 5 1E-3 S 3

	AFWL Computer Ctr.	
Location:	SW Corner	
Meter Sett Meter Read	ing 70 dB ing 69 dB	



2.57 5.14 7.71 10 28 12 85 1.28 3.85 6.42 8.99 11 56 1E 3 HZ A STATE OF THE PERSON OF THE P



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B

1.8 Facility: AFWL Computer Ctr 1.6 Location: SW Corner 1.4 1.2 Meter Setting dB Meter Reading 69 1 dB .8 . 4 .2 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB 1E-3 V 160 400 300 140 200 120 100 100 0 80 -100 69 -200

40

20

8 12 16 1 10 14 18 16-3 S ø.

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2.57 5.14 1.28 3.85 6

4 7.71 10.28 12.85 6.42 8.99 11.56 1E 3 HZ

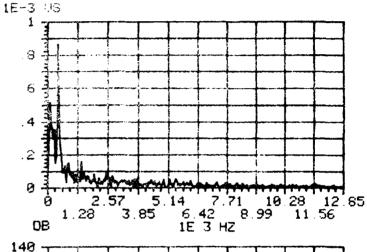
1E-3 US

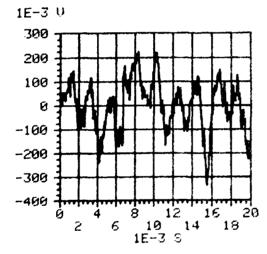
Noise Test No.

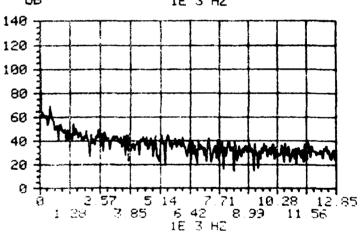
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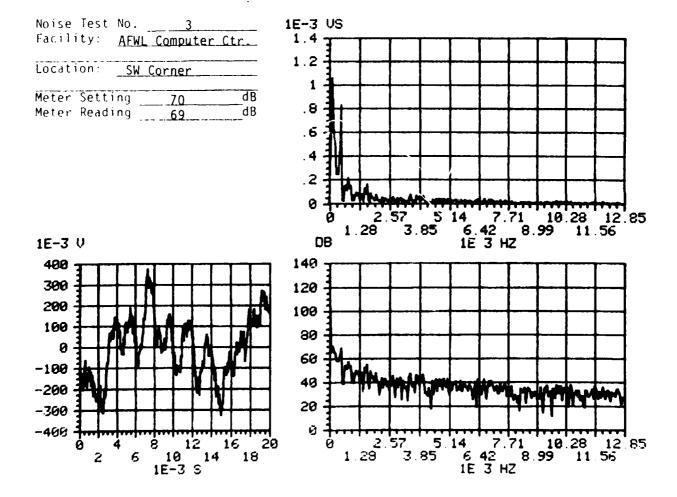
-400 <del>1</del> -500 <del>0</del> Noise fest No. 3
Facility: AFWL Computer Ctr.
Location: SW Corner

Meter Setting 70 dB
Meter Reading 69 dB



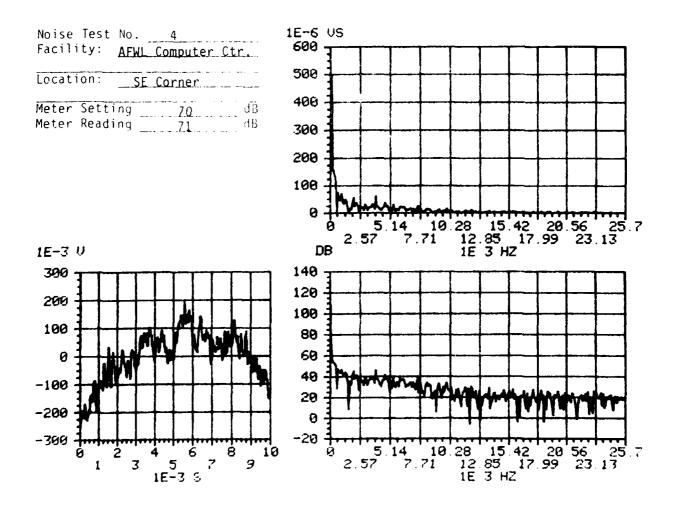






Noise Test No. 1E-3 US Facility: AFWI Computer Ctr. Location: 8 -SE Corner Meter Setting .6 Meter Reading \_\_\_\_71 . 2 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 08 1E-3 U 160 499 140 300 120 200 100 100 80 60 0 40 -10020 -299 0 -20 --300 4 7.71 10.28 12.65 6.42 8.99 11.56 1E.3.HZ 2 57 5.14 1 28 3 85 6 8 12 16 10 14 18 1E-3 S 20 2

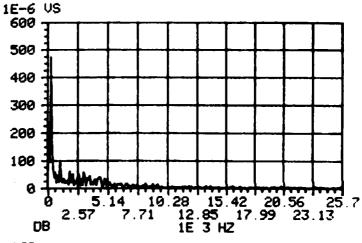
1E-6 US Noise Test No. Facility: AFWL Computer Ctr. 900 800 Location: SE Corner 700 600 dB Meter Setting dΒ 500 Meter Reading \_ 400 300 200 100 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ OB 1E-3 V 160 250 140 150 120 109 59 80 -50 60 40 -150 20 ø. -250 8 12 10 14 1E-3 S 4 7.71 10.28 12.85 6.42 8.99 11 56 1E 3 HZ 2.57 5.14 1.28 3.85 6 16 18 2

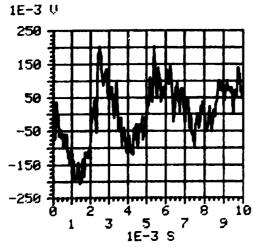


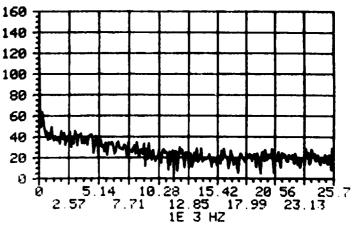
Noise Test No. 4
Facility: AFWL Computer Ctr.

Location: SE Corner

Meter Setting 70 dB
Meter Reading 71 dB







Noise Test No. 5 1E-3 VS Facility: AFWL Computer Ctr. Location: Center of Room 1 Meter Setting 70 dEMeter Reading 71 .8 .6 .2 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 80 1E-3 U 140 500 120 300 100 100 80 60 -100 40 -300 20 9 -500 8 12 16 10 14 18 1E-3 8 2.57 5.14 8 3.85 6 4 7.71 10 28 12.85 6.42 8.99 11 56 1E 3 HZ 20 2 6 1 28

Noise Test No. 5 1E-3 US Facility: AFWL Computer Ctr. 1.2 Location: Center of Room 1 -Meter Setting \_ dB .8 .6 . 4 . 2 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ OB 1E-3 V 140 300 200 120 190 100 0 80 -100 60 -200 40 -300 20 -400 -500 <del>].</del> 9 Ø. 8 12 16 10 14 18 1E-3 S 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ

Noise Test No. 5 1E-6 US AFWL Computer Ctr. 400 350 Location: Center of Room 300 Meter Setting \_ \_ZQ\_\_ 250 Meter Reading 71 200 150 100 50 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 1E-3 V 169 300 140 200 120 190 100 80 Ø 60 -10049 -200 20 0 -300 5.14 10 2.57 7.71 10.28 15.42 20.56 25.7 1 12.85 17.99 23.13 1E.3 HZ Ġ

8 9

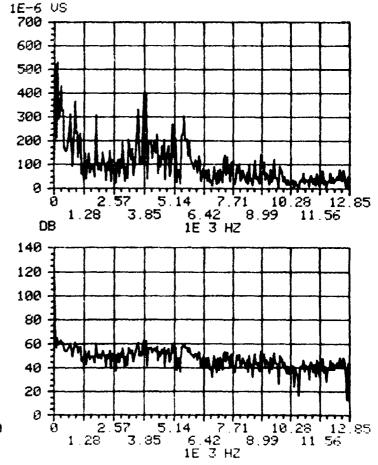
ີ 5 1E-3 S

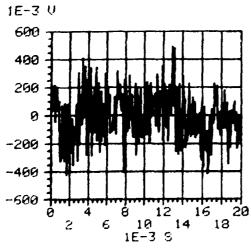
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1E-6 US Noise Test No. Facility: AFWI Computer Ctr. 800 700 Location: Center of Room 600 dB Meter Setting 500 dB Meter Reading \_\_\_\_71 400 300 200 100 0 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 08 1E-3 V 160 400 300 140 120 200 100 100 80 0 60 -100 -200 40 -300 20 Ø -499 -28 15.4 12.85 1E 3 HZ 5 1E-3 S

Noise Test No. 6
Facility: AFWL Computer Ctr.
Location: 6 Feet Card Reader
Meter Setting 80 dB
Meter Reading Z2 dB

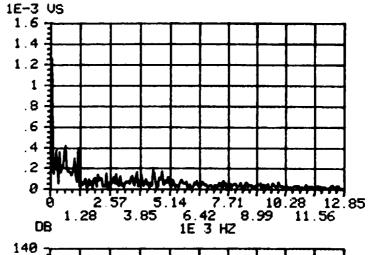


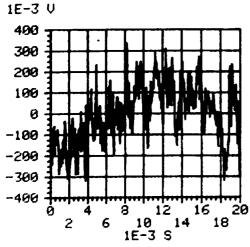


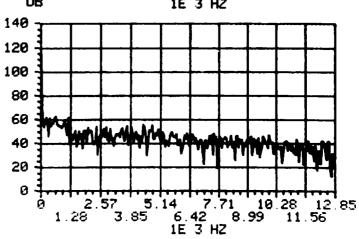
Noise Test No. 6
Facility: AFWL Computer Ctr.

Location: 6 Feet Card Reader

Meter Setting 80 dB
Meter Reading 72 dB

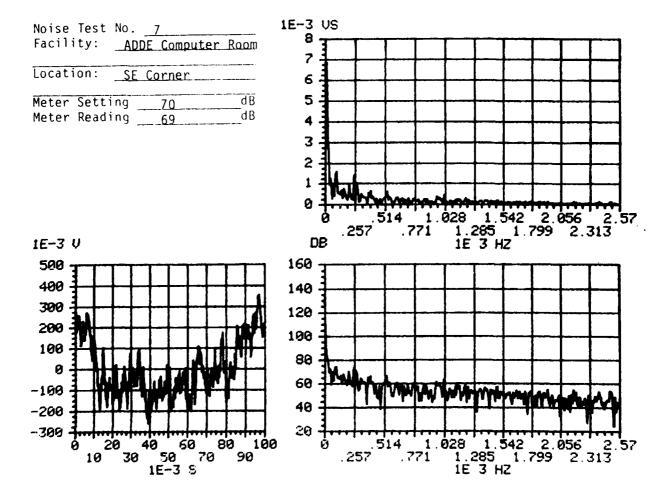


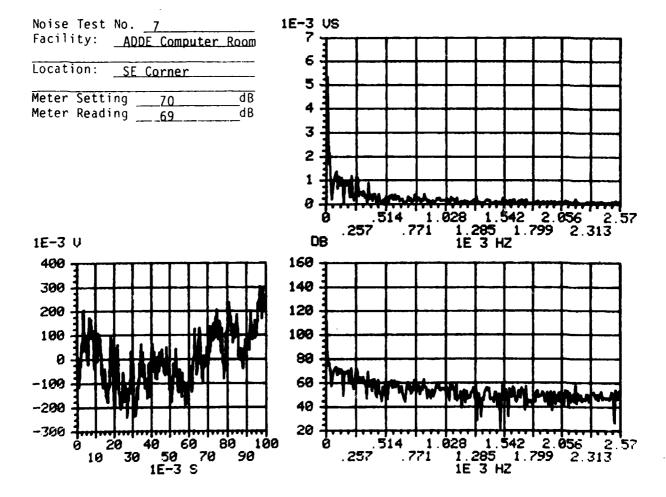




Noise Test No. 1E-6 US AFWL Computer Ctr. 500 -Facility: Location: 6 Feet Card Reader 400 Meter Setting 80 Meter Reading 72 300 -200 -100 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 1E-3 U 400 160 300 140 200 120 100 100 80 Ø 60 -100 -200 40 20 -300 -499 -Ø 5.14 10.28 15.42 20 56 25 7 2 57 7.71 12.85 17 99 23 13 1E 3 HZ Ė 5 1E-3 S 9 3 1

Noise Test No. 1E-3 VS AFWL Computer Ctr. Facility: Location. 6 Feet Card Reader .8 Meter Setting dB 80 . **6** dΒ Meter Reading . 2 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 1E-3 V 160 500 408 140 300 120 200 100 100 80 Ø 60 -100 40 -200 20 -300 Ø -466 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 9 10 7 5 1E-3 S 1 3

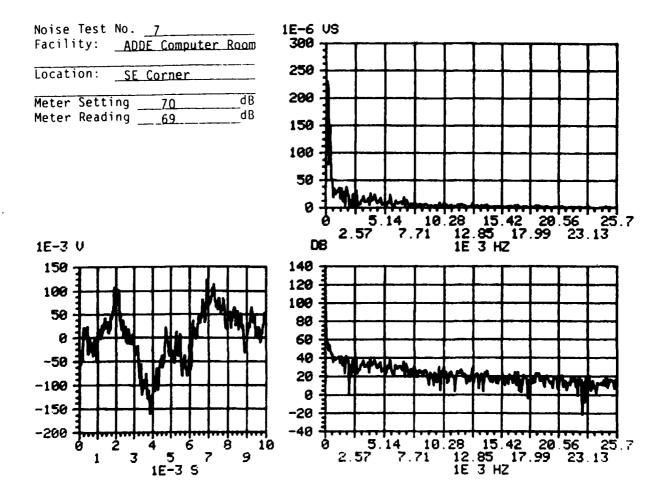


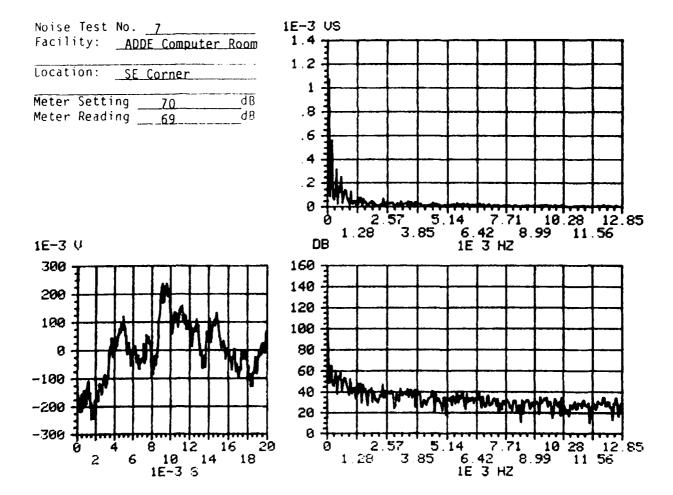


Noise Test No. \_7\_ 1E-3 US Facility: <u>ADDE Computer Room</u> 3 -2.5 Location: SE Corner 2 Meter Setting \_70 Meter Reading 69 1.5 -0 1.028 2.056 3.084 4.112 5.14 4 1.542 2.57 3.598 4.626 1E 3 HZ DB 1E-3 V 160 -400 140 300 120 200 100 100 80 Ø 60 -109 40 -200 20 -300 -0 40 45 20 30 4 25 35 1E-3 S 1.028 2.056 3.084 4.112 5.14 4 1.542 2.57 3.598 4.626 1E 3 HZ 10 .514

1E-3 VS Noise Test No. 7 Facility: ADDE Computer Room 3.5 Location: SE Corner 3 Meter Setting dB 2.5 70 Meter Reading dB 69 2 1.5 1 1.028 2.056 3.084 4.112 5 14 14 1.542 2.57 3.598 4.626 1E 3 HZ DB 1E-3 V 160 400 140 300 120 200 100 100 80 0 60 -100 -200 40 20 -399 1.028 2.056 3.084 4.112 5.14 .514 1.542 2.57 3.598 4.626 1E 3 HZ 20 30 40 - 25 35 1E-3 S ้าร 45

Noise Test No. 7 1E-3 US 1 2 7 Facility: ADDE Computer Room Location: SE Corner . 8 Meter Setting dB \_\_70 Meter Reading 69 .6 .2 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB 1E-3 V 160 300 140 200 120 100 100 80 0 60 --100 40 -200 20 0 -366 2.57 5.14 7.71 10 28 12.65 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 8 12 16 10 14 1E-3 S 8 2

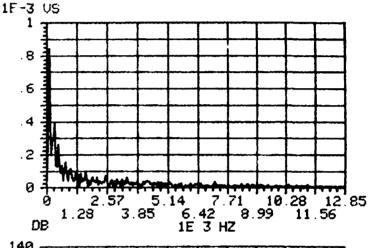


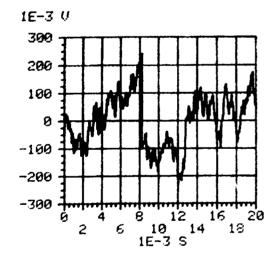


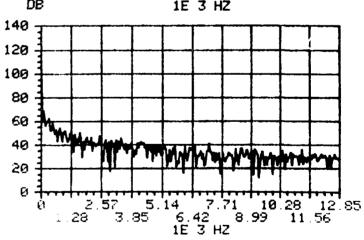
Noise Test No. \_7\_ 1E-6 US Facility: ADDE Computer Room 600 500 Location: SE Corner 400 Meter Setting dB 70 Meter Reading \_\_\_69 dΒ 300 200 100 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 1E-3 V DB 140 250 200 120 150 100 100 80 50 60 0 40 -50 20 -100 -0 -150 -20 -200 5.14 10.28 15.42 20 56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 3 5 1E-3 S

Noise Test No. 8
Facility: ADDE Computer Room
Location: SW Corner

Meter Setting 70 dB
Meter Reading 72 dB





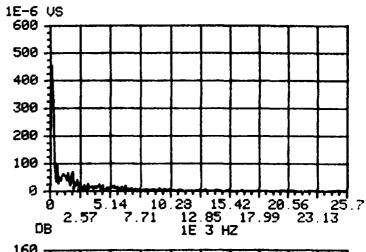


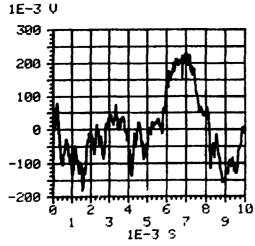
1E-6 VS Noise Test No. \_ 8 Facility: ADDE Computer Room 600 Location: SW Corner 500 Meter Setting \_ dB 400 Meter Reading 72 dB 300 200 100 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB 1E-3 V 140 250 200 120 150 100 100 80 50 60 8 40 -50 20 -100 0 -150 -200 <del>].</del> -200 <del>].</del> 0 -20 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 8 12 16 10 14 18 1E-3 S

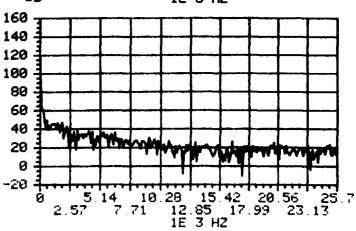
1E-6 US 500 J Noise Test No. \_ 8 Facility: ADDE Computer Room 400 Location: SW Corner 300 Meter Setting 70 Meter Reading 72 200 100 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 1E-3 V 140 250 120 150 100 80 50 60 -50 40 20 -1508 -20 --250 10.28 15 42 20.56 25.7 71 12.85 17.99 23.13 1E 3 HZ 6 5.14 2.57 7 10 ີ 5 1E-3 9 3 9

Noise Test No. 8
Facility: ADDE Computer Room
Location: SW Corner

Meter Setting 70 dB
Meter Reading 72 dB







1E-6 US Noise Test No. 450 -Facility: ADDE Computer Room 400 350 NW Corner Location: 300 Meter Setting ₫B 250 Meter Reading 73 200 150 100 50 0 2.57 5.14 7.71 10.28 12.85 8 3.85 6.42 8.99 11.56 1E 3 HZ 1.28 08 1E-3 V 160 259 200 140 120 150 100 100 80 50 60 9 40 -50 20 -100 ø. -159 8 12 16 10 14 18 1E-3 S 2.57 5.14 7.71 10.28 12 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 10 28 12.85

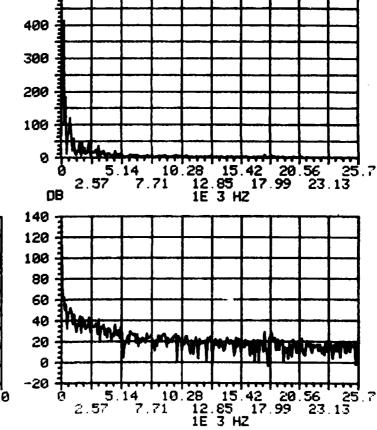
1E-6 VS Noise Test No. 800 Facility: ADDE Computer Room 700 600 Location: NW Corner 500 Meter Setting  $\overline{dB}$ 400 Meter Reading 73 dB 300 200 100 0 .57 5.14 7.71 10.28 12.85 3.85 6.42 8.99 11.56 1E 3 HZ DB 1E-3 V 259 140 120 150 100 80 50 60 -50 40 20 -150 0 -20 -250 -2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 8 12 10 14 1E-3 5 8 16 2

1E-6 US Noise Test No. 450 Facility: ADDE Computer Room 400 350 NW Corner Location: 300 Meter Setting 70 73 250 Meter Reading 200 150 100 50 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 1E-3 U 160 259 200 140 150 120 190 100 50 80 Ø 60 -50 40 -100 20 -1500 -200 6 28 15.42 20.56 25.7 12.65 17.99 23.13 1E 3 HZ 10.28 7 5 1E-3 S

Noise Test No. 9
Facility: ADDE Computer Room

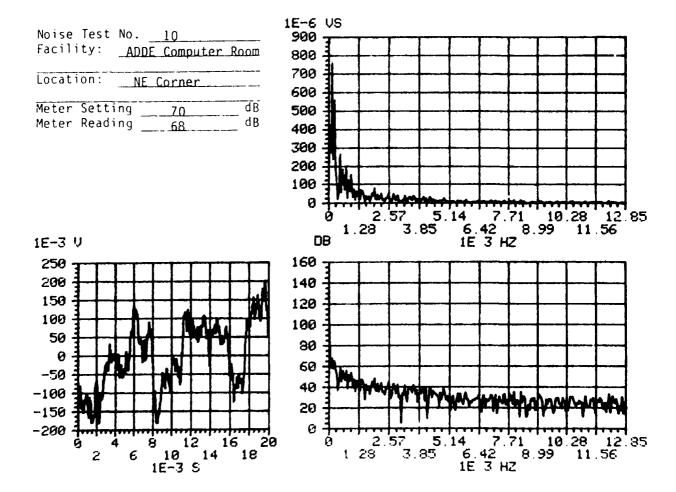
Location: NW Corner

Meter Setting 70 dB
Meter Reading 73 dB



1E-6 US

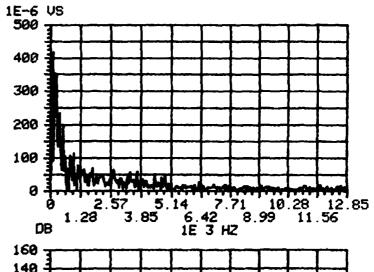
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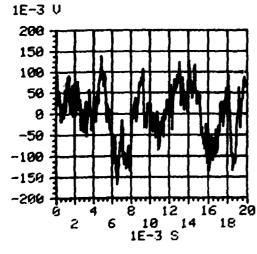


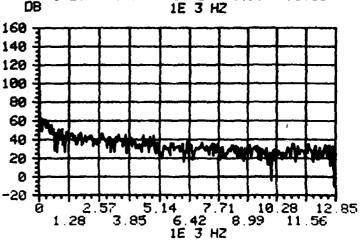
Noise Test No. 10
Facility: ADDE Computer Room

Location: NE Corner

Meter Setting 70 dB
Meter Reading 68 dB







1E-6 US Noise Test No. 10 450 Facility: ADDE Computer Room 400 350 Location: NE Corner 300 Meter Setting Meter Setting 70 Meter Reading 68 250 200 150 100 50 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 90 1E-3 V 140 250 120 150 100 80 50 60 -50 40 20 -150Ø -20 <del>] .</del> 9 -250 5.14 10.28 15.42 20.56 25.7 2 57 7.71 12.85 17.99 23.13 1E 3 HZ 5 1E-3 S

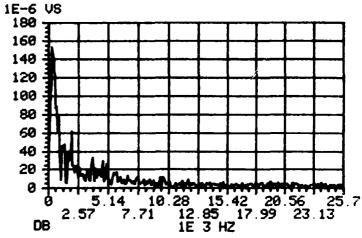
 Noise Test No.
 10

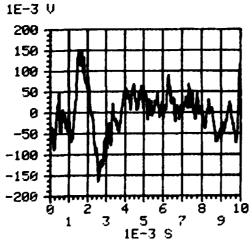
 Facility:
 ADDE Computer Room

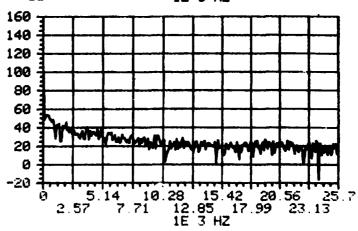
 Location:
 NE Corner

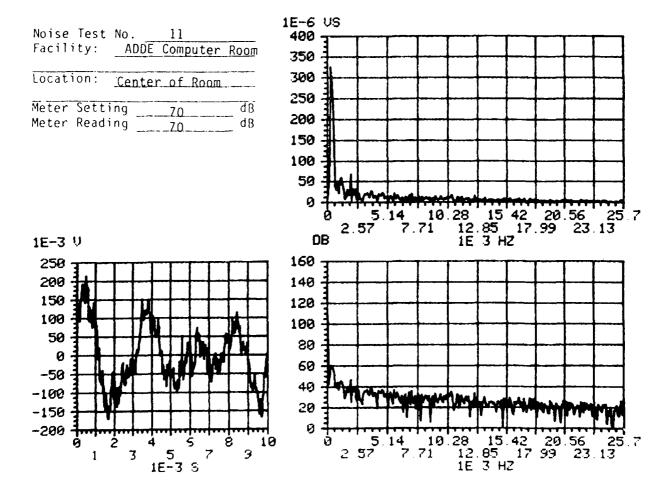
 Meter Setting
 70
 dB

 Meter Reading
 68
 dB







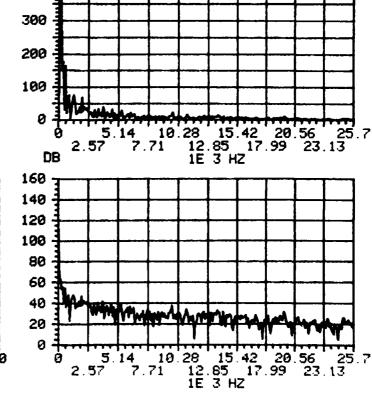


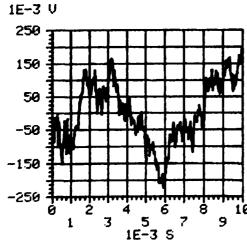
Noise Test No. 11
Facility: ADDE Computer Room

Location: Center of Room

Meter Setting 70 dB

Meter Reading 70 dB





1E-6 US

500

400

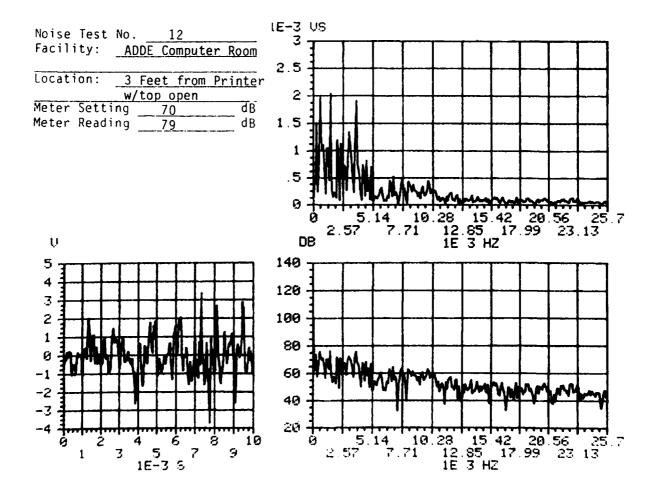
1E-6 US Noise Test No. 11 700 -Facility: ADDE Computer Room 600 Location: Center of Room 500 400 300 200 199 2.57 5.14 7.71 10.28 12.85 8 3.85 6.42 8.99 11.56 1E 3 HZ 1.28 DB 1E-3 U 140 250 200 120 150 100 190 80 50 0 60 --59 40 -109 20 --150 0 7 -200 -8 12 16 10 14 18 1E-3 S 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ

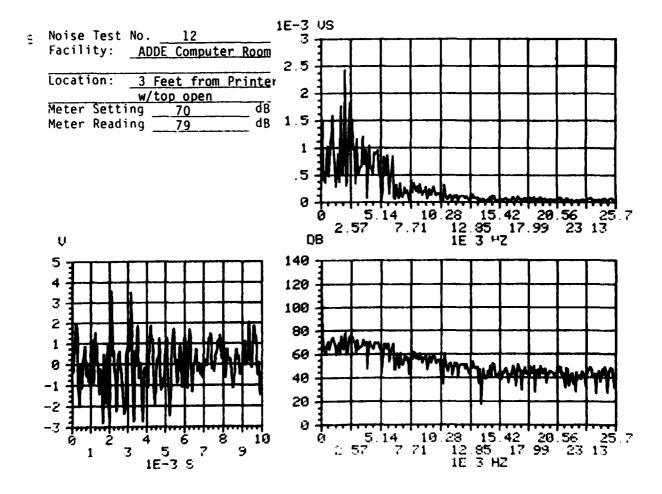
1E-6 US Noise Test No. 11 Facility: ADDE Computer Room Location: Center of Room 600 -₫B Meter Setting 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 1E-3 U -50 -100 -150 -200 8 12 16 10 14 18 1E-3 S 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ

SELECTIVE AUTOMATIC FIRE EXTINGUISHER FOR CLASS A WITH MOTIFICATION (SARE. (U) NEW MEXICO ENGINEERING RESEARCH INST ALBUQUERQUE C W MILSON ET AL. MAY 83 NMERI-143-1-VOL-2 AFESC/ESL-TR-83-87-VOL-2 F/G 13/12 AD-A130 331 UNCLASSIFIED NL

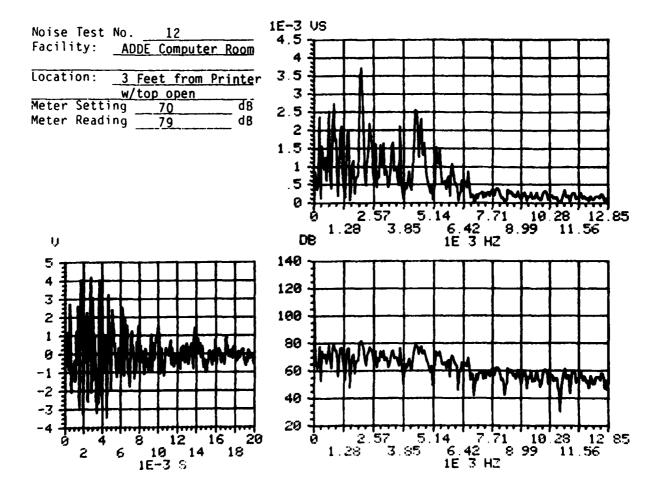


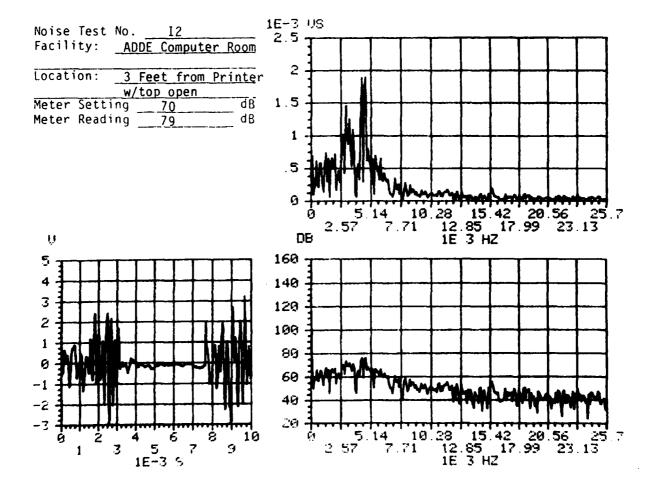
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A





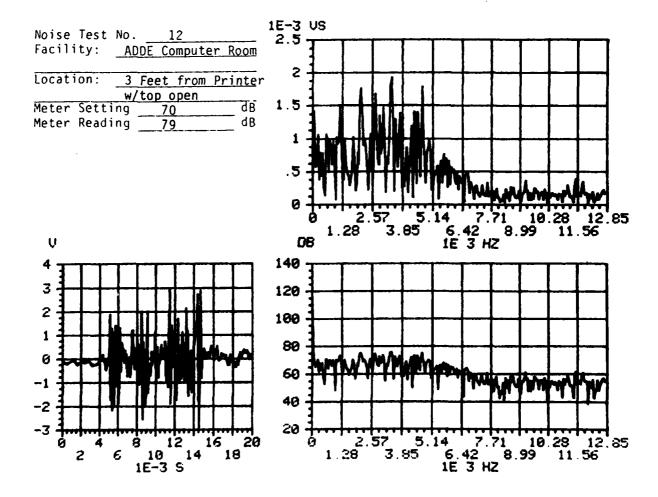
1E-3 VS Noise Test No. 6 Facility: ADDE Computer Room 5 Location: 3 Feet from Printer w/top open ₫B Meter Setting \_ 70 3 dB Meter Reading 2 2.57 5.14 7.71 10.28 12.85 8 3.85 6.42 8.99 11 56 1E 3 HZ DB Ų 140 120 100 89 60 -2 40 20 8 12 16 20 10 14 18 1E-3 S 2.57 5.14 7.71 10 28 12.95 1 38 3.85 6.42 8.99 11 56 1E 3 HZ 2 6



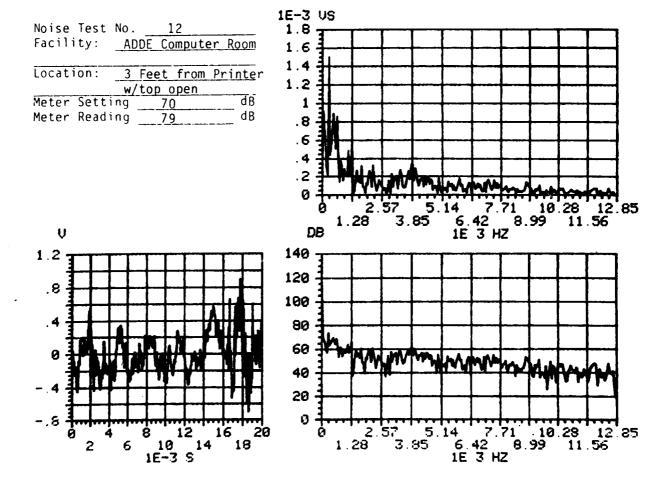


of Especial Carbonal Topoposom Managaria (September Carbonal Company)

1E-3 US Noise Test No. \_\_\_12 Facility: ADDE Computer Room 1.6 Location: 3 Feet from Printer w/top open Meter Setting 1.2 <u>d8</u> Meter Reading ďΒ 0 Ų 160 140 120 100 80 60 -2 40 -3 20 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ ັ 5 1E-3 S 3

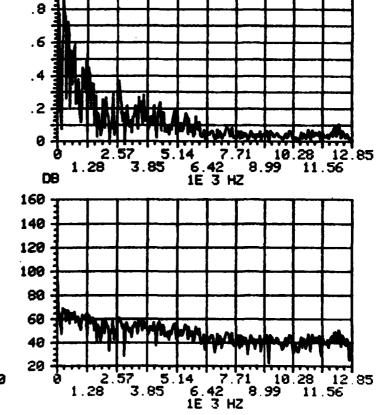


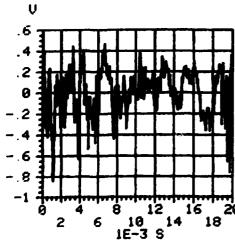
1E-3 VS Noise Test No. 12 Facility: ADDE Computer Room 3.5 Location: 3 Feet from Printer 3 w/top open 2.5 Meter Setting ₫B 70 Meter Reading dB 2 1 10.28 12.85 8.99 11.56 6.42 1E 3 HZ 08 V 140 120 3 2 100 80 0 60 -2 40 -3 20 6 2.57 5.14 7.71 10.28 1.28 3.85 6.42 8.99 11 1E 3 HZ 8 12 16 10 14 18 1E-3 S 28 12.85 11.56 2 6



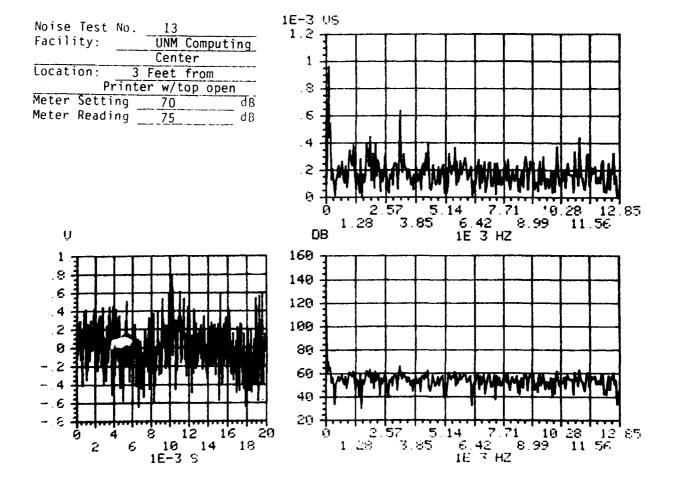
Noise Test No. 12
Facility: ADDE Computer Room

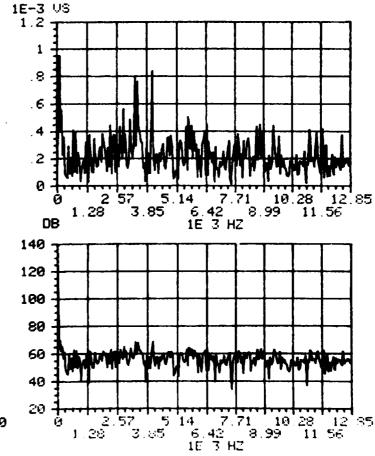
Location:	3 Feet	<u>from Printe</u> r
	w/top c	pen
Meter Sett	ing 70	
Meter Read	ing	dB



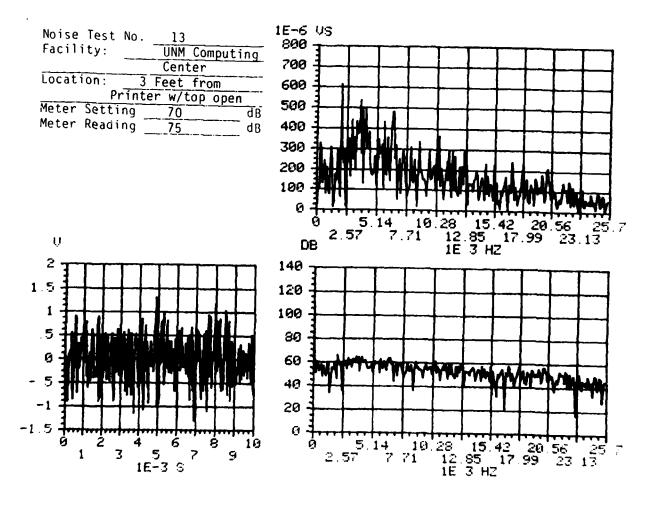


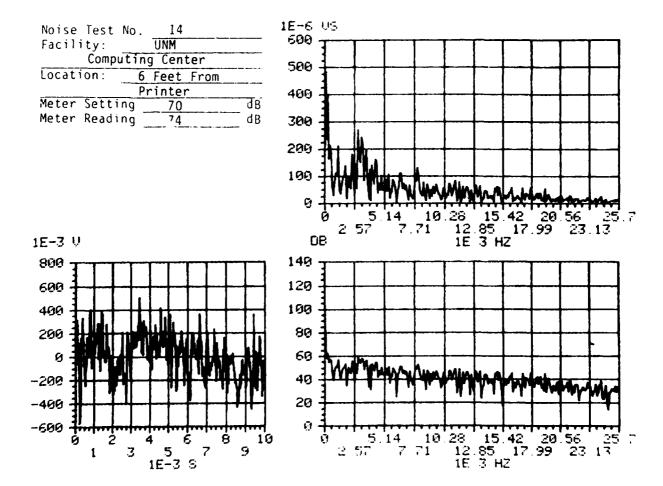
1E-3 US





1E-6 US Noise Test No. 13
Facility: UNM Computing Center Location: 3 Feet from Printer w/top open Meter Setting 70 Meter Reading 75 Ø 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ IJ 1.5 4 6 5 1E-3 S 10 28 15 42 20 56 25 1 12 85 17 99 23 13 1E 3 HZ

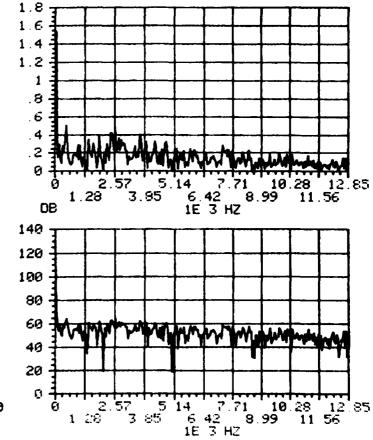




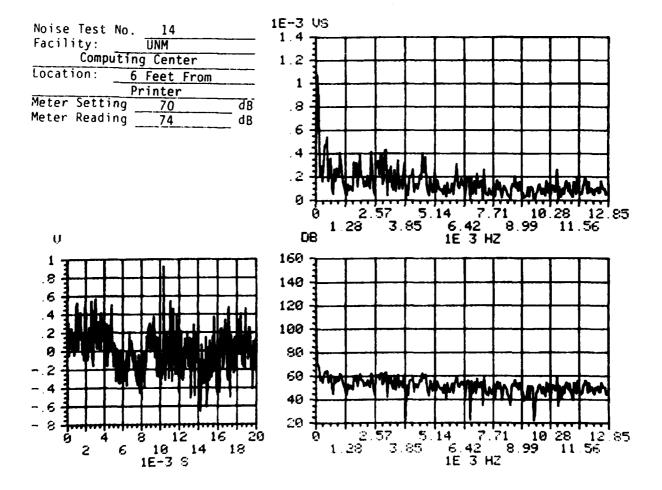
Noise Test No. 14 1E-6 US 14 Computing Center 400 Location: 6 Feet From Printer 300 đв Meter Setting Meter Reading dB 209 100 28 15.42 20.56 25.7 12.85 17.99 23.13 1E 3 HZ 90 Ų 140 120 .8 . € 100 80 60 40 20 Ø 5 14 10 28 15 42 20 56 25 7 2 57 7 71 12 85 17 99 23 13 1E 3 HZ 4 6 5 1E-3 S 3

Noise Test No. 14
Facility: UNM
Computing Center
Location: 6 Feet From
Printer
Meter Setting 70 dB
Meter Reading 74 dB

Ų



1E-3 US



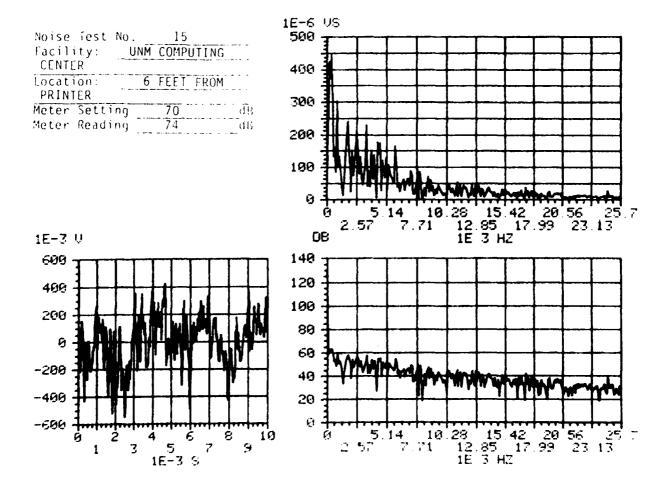
1E-3 US 2.5 Noise Test No. UNM COMPUTING Facility: CENTER 2 Location: 6 FEET FROM PRINTER 1.5 dB Meter Setting 70 74 dB Meter Reading 1 . 5 2.57 5.14 7.71 10.28 12.85 3.85 6.42 8.99 11 56 1E 3 HZ 90 1E-3 U 160 800 698 140 400 120 200 100 89 -200 60 -400 40 -699 20 -866 8 12 16 1 10 14 18 1E-3 S 7 5 3.85 4 7 71 10 28 12 85 6.42 8.99 11 56 16 3 HZ 6 2

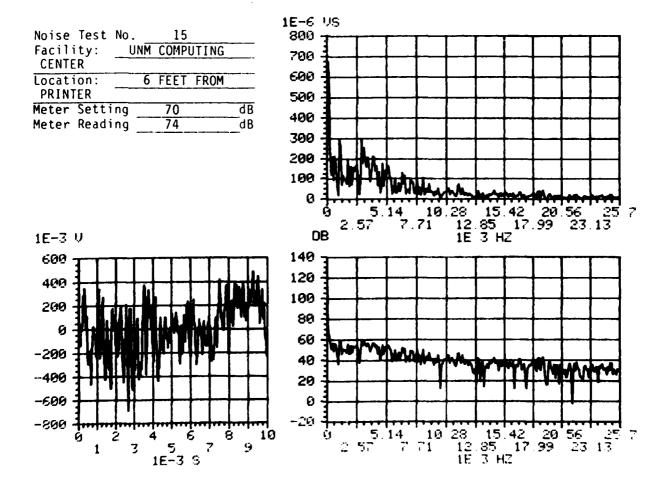
Noise Test No. 15 UNM COMPUTING Facility: 1.2 CENTER Location: 6 FEET FROM 1 PRINTER . 8 Meter Setting dB 70 Meter Reading ďB 6 4 7.71 10.28 12.85 6.42 8.99 11.56 1E 3 HZ 1E-3 V 160 600 140 400 120 200 100 9 88 -299 60 -499 40 20 -699 8 12 10 14 1E-3 S 57 5.14 7.71 10.28 12 3 85 6.42 8.99 11 56 18 3 HZ

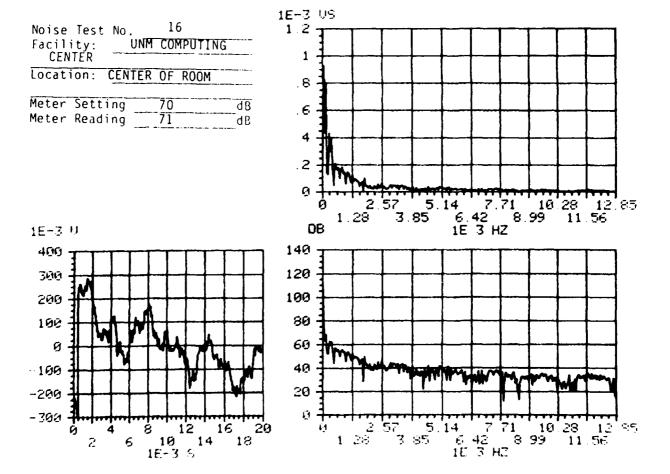
1E-3 VS

16

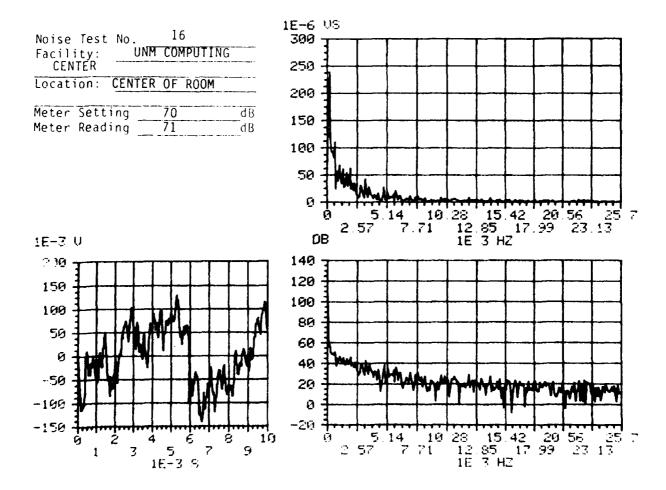
2







1E-6 US Noise Test No. Facility: U CENTER 16 800 UNM COMPUTING 700 600 Location: CENTER OF ROOM 500 Meter Setting dB 400 Meter Reading \_ dB 300 200 100 Ø 2.57 5.14 7.71 10.28 12.85 8 3.85 6.42 8.99 11.56 1E 3 HZ DB 1E-3 V 160 200 150 140 100 120 50 100 Ø 80 -50 60 -100 40 -150 20 -200 Ø -259 -2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 8 12 16 10 14 18 1E-3 S 2



1E-6 US Noise Test No. Facility: U CENTER 16 160 UNM COMPUTING 140 120 Location: CENTER OF ROOM 199 Meter Setting dB 80 Meter Reading 60 40 20 10.28 15.42 20.56 25.7 1 12.85 17.99 23.13 1E 3 HZ DB 1E-3 V 140 200 120 150 190 100 89 59 60 40 -50 20 -169 Ø -20 4 10.28 15.42 20.56 25 7 71 12.85 17 99 23 13 1E 3 HZ -150 5.14 2.57 7 4 6 5 1E-3 S 3

### FUSIBLE ALLOY TESTS

TEST NO.	CONFIGURATION	TOTAL MASS g	OVEN TEMP.	ALLOY TEMP. F	RESPONSE TIME s (PARTIAL RELEASE)
1	Thick wall 3 X 1/64 in. holes	320 (est.)	390	117	89
2	Thick wall 3 X 1/16 in. holes	320 (est.)	390	117	30
3	Thick wall 5 X 1/16 in. holes	320 (est.)	392	117	30
4	Thick wall 3 X 1/8 in. holes	320 (est.)	395	117	37
5	Thick wall 3 X 1/16 in. holes	321	400	117	33
6	Thick wall 3 X 1/64 in. holes	316	395	117	31
7	Thick wall 5 X 1/16 in. holes	315	395	117	25
8	Thick wall 3 X 1/8 in. holes	320	396	117	34
9	Circle Tube	<b>29</b> 8	396	117	15 (9)
10	Thin wall 3 X 1/16 in. holes	57	396	117	5
11	Thin wall 3 X 1/64 in. holes	63	398	117	4
12	Extension tube 12 in. X 1/8 in.	22	400	117	6
13	Extension tube 12 in. X 1/4 in.	47	397	117	6
14	Thick wall 5 X 1/16 in. holes	317	197	117	143 (105)
15	Thick wall 3 X 1/8 in. holes	315	198	117	124
16	Thin wall 3 X 1/16 in. holes	59	197	117	20
17	Thin wall 3 X 1/64 in. holes	56	198	117	22
18	Thick wall 3 X 1/64 in. holes	313	198	117	102
19	Thick wall 3 X 1/16 in. holes	320 (est)	198	117	14
20	Isotip Vapor	7 (est)	198	117	58
			117		

117

(continued)

## FUSIBLE ALLOY TESTS (continuation)

TEST NO.	CONFIGURATION	TOTAL MASS	OVEN TEMP. F	ALLOY TEMP. F	RESPONSE TIME s (PARTIAL RELEASE)
21	Isotip liquid	7 (est)	198	117	122
22	Thick wall 5 X 1/16 in. holes	419	200	117	144
23	Extension Tube 12 in. X 1/4 in.	47	200	117	27
24	Extension Tube 4 in. X 1/8 in.	13	200	117	16
25	Thin wall 3 X 1/16 in. holes	139	200	117	91
26	Isotip Vapor	7	200	117	62
27	Isotip Liquid	7	200	117	140
<i>2</i> 3	Isotip Vapor	7	200	117	57
29	İsotip Liquid	7	200	117	101
30	Extension Tube 12 in. X 1/18 in.	22	300	117	7
31	Thick 3 X 1/8 in. holes	365	300	117	52 (32)
32	Thick wall 3 X 1/64 in. holes	378	400	117	63
33	Thick wall 3 X 1/16 in. holes	414	<b>39</b> 8	117	76
34	Isotip (plus)	7	401	117	26
35	Vapor Isotip (foil) Vapor	7	398	117	12
36	Thin wall 3 X 1/64 in. holes	131	397	117	36
37	Thick wall 3 X 1/64 in. holes	418	400	158	150
38	Thick wall 3 X 1/16 in. holes	382	400	158	65
39	Isotip (foil) Liquid	7	395	158	58
40	Isotip (foil) Vapor	7	400 <b>118</b>	158	35

# FUSIBLE ALLNY TESTS (continuation)

TEST NO.	CONFIGURATION	TOTAL MASS	OVEN TEMP. F	ALLOY TEMP. OF	RESPONSE TIME s (PARTIAL RELEASE)
41	Extension Tube 12 in. X 1/8 in.	33 (est)	400	158	15
42	Isotip (foil) Vapor	7	300	158	65
43	Isotip (foil) Vapor	7	300	<b>1</b> 58	85
44	Thick wall 3 X 1/16 in. holes	416	200	158	396
45	Thick wall 5 X 1/16 in. holes	377 (est)	200	158	260
46	Thin wall 3 X 1/16 in. holes	109	200	158	49
47	Thin wall 3 X 1/64 in. holes	138	200	153	280
48	Extension Tube 12 in. X 1/4 in.	47	200	158	50
49	Extension tube 4 in. X 1/8 in.	13	200	158	36
50	Isotip (foil) Vapor	7	200	158	137
51	Isotip (foil) Liquid	7	200	158	239
52	Thick wall 3 X 1/8 in. holes	379	400	158	63
53	Thick wall 3 X 1/64 in. holes	418	395	136	<b>9</b> 8
54	Thick wall 3 X 1/8 in. holes	381	395	136	44
55	Extension tube 13 in. X 1/8 in.	33 (est)	395	136	8
56	Isotip (foil) Vapor	7	395	136	42
57	Isotip (foil) Liquid	7	395	136	56
<b>5</b> 8	Isotip (foil) Vapor	7	300	136	53
59	Isotip (foil) Liquid	7	300	136	72
60	Thick wall 3 X 1/16 in. holes	416 (est)	200 <b>119</b>	136	250
/conti	inued)				

(continued)

## FUSIBLE ALLOY TESTS (continuation)

TEST NO.	CONFIGURATION	TOTAL MASS	OVEN TEMP. F	ALLOY TEMP. F	RESPONSE TIME s (PARTIAL RELEASE)
61	Thick wall 5 X 1/16 in. holes	377	377	136	150
62	Thin wall 3 X 1/16 in. holes	110	200	136	21
63	Thin wall 3 X 1/64 in. holes	139	200	136	145
64	Isotip (foil) Vapor	7	200	136	115
65	Isotip (foil) Liquid	7	200	130	161
66	Extension Tube 12 in. X 1/4 in.	47	200	136	30
67	Extension tube 12 in. X 1/8 in.	13	200	136	30
68	Extension tube 12 in. X 1/4 in.	49	395	255	35
69	Extension tube 12 in. X 1/8 in.	22	395	255	26
70	Thin wall 3 X 1/16 in. holes	110 (est)	395	255	119
71	Thick wall 3 X 1/16 in. holes	382 (est)	395	255	186
72	Copper clad		395	117	112
73	Nylon tube		400	Nylon	15

### VAPORIZING LIQUID SENSOR TESTS (VLS)

#### Bourdon Tube Pressure Gage Tests SENSOR OVEN TEMP. HALON **PRESSURE** TEST NO. TIME PSIG (SEC) 200<sup>0</sup>F 1.8 18.1 25.4 43.1 140<sup>0</sup> 20 29.0 100°F 44.5 100° 100° .5 100<sup>C</sup> 100° . 25 120<sup>0</sup> ŝ .5 120° . 5 140<sup>0</sup>

140<sup>0</sup>

140°

140<sup>0</sup>

160<sup>0</sup>

(continued)

.5

# (continuation) VAPORIZING LIQUID SENSOR TESTS (VLS) Bourdon Tube Pressure Gage Tests

TEST NO.	HALON	OVEN TEMP.	SENSORd	PRESSURE PSIG	TIME (SEC)
15	2402	160 <sup>0</sup>	2	0 1	0
16	2402	200 <sup>0</sup>	1	1 0 5 7	420 0 68
17	2402	200 <sup>0</sup>	2	0 .5	390 0 300
18	2402	200 <sup>0</sup>	3	0 5 10 10	0 33 160 300
19	2402	200 <sup>0</sup>	4	0	0 300
20	2402	2400	2	0 .5	0 300

### SENSORSa

- 1. 1/4" diameter straight copper tube 20" length 255°F fusible link.
- 2. 1/8" diameter straight copper tube 20" length 255°F fusible link.
- 3. 1/4" diameter copper tube 40" length with  $180^{\rm O}$  bend at midpoint  $255^{\rm O}$ F fusible link.
- 4. 1/8" diameter straight copper tube 10" length 255<sup>O</sup>F fusible link.

### ELECTRONIC PRESSURE TRANSDUCER a TESTS

TEST NO.	HALON/FILL	OVEN TEMP	SENSOR <sup>b</sup>	PRESSURE	TIME
	%	<b>°</b> F		PSIG	(SEC)
		100	•	07.0	0
21	1211/80	100	1	27.0	0 5
				27.8	
				27.9	10 15
				28.2	20
				29.5	25
				29.8	
				31.6	30 25
				33.0	35
				33.1	40
				34.0	45
				34.6	50
				35.2	55
				35.7	60
				36.2	65
				36.7	70
				37.4	75
				38.0	80
				38.4	85
				38.9	90
				39.2	95
				39.5	100
				39.8	105
				39.9	110
				40.3	115
				40.6	120
				41.6	140
				42.6	160
				43.3	190
				44.1	260
				44.6	320
				44.6	380
				44.9	440

TEST NO.	HALON/FILL	OVEN TEMP	SENSOR <sup>b</sup>	PRESSURE PSIG	TIME (SEC)
	~	•			(020)
22	1211/80	200	1	24.9	0
			_	27.8	5
				35.1	10
				43.9	15
				51.6	20
				59.1	25
				67.2	30
				73.1	25
				80.7	40
				86.6	45
				93.1	50
				99.0	55
				103.0	60
				109.5	65
				113.2	70
				118.2	75
				121.8	80
				125.7	85
				129.2	90
				132.2	95
				133.5	100
				138.8	105
				141.1	110
				142.2	115
				145.3	120
				152.4	140
				158.2	160
				164.4	190
				188.9	260

TEST NO.	HALON/FILL %	OVEN TEMP	SENSOR <sup>b</sup>	PRESSURE PSIG	TIME
	~	•		F 31G	(SEC)
22	1211/80	200	1	193.1	320
(continued)	·		-	194.6	380
				196.7	450
				197.6	510
				199.0	570
				199.0	630
23	2402/80	100	i	0.5	0
				0.7	5
				0.9	10
				1.0	15
				1.1	20
				1.3	25
				1.4	30
				1.6	35
				1.6	40
				1.8	45
				1.9	50
				2.0	60
				2.6	90
				3.0	120
				3.5	150
				3.7	180
				4.1	240
				4.2	300
				4.3	<b>36</b> 0
24	2402/80	200	1	0.6	0
				1.2	5
				2.5	10

TEST NO.	HALON/FILL	OVEN TEMP	SENSOR <sup>b</sup>	PRESSURE	TIME
	*	•F		PSIG	(SEC)
24	2402/80	200	1	4.6	15
(continued)			_	5.7	20
,				6.7	25
				8.2	30
				10.0	35
				11.6	40
				13.8	45
				15.7	50
				18.3	55
				20.0	60
				22.5	65
				23.7	70
				25.6	75
				26.9	80
				28.0	85
				29.3	90
				30.2	95
				31.2	100
				33.5	105
				35.7	110
				36.4	115
				37.1	120
				39.6	140
				42.0	160
				44.5	190
				47.7	260
				48.4	320
				49.1	380
				49.3	440

TEST	NO. HALON/FILL %	OVEN TEMP °F	SENSOR <sup>b</sup>	PRESSURE PSIG	TIME (SEC)
25	2402/50	100	4	0.3	0
				0.8	5
				1.2	10
				1.6	15
				1.7	20
				1.8	25
				2.0	30
				2.1	40
				2.2	50
				2.3	60
				2.4	90
				2.5	120
				2.5	150
26	2402/50	200	4	0.0	0
			(1/2 in ov	en) 2.5	5
				7.2	10
				9.4	15
				11.3	20
				12.4	25
				13.3	30
				14.6	35
				15.3	40
				15.9	45
				16.1	50
				16.3	55
				16.4	60
				16.8	65
				17.3	70
				17.1	<b>7</b> 5

26	TEST NO.	HALON/FILL %	OVEN TEMP  °F	SENSOR <sup>b</sup>	PRESSURE PSIG	TIME (SEC)
17.9 90 18.2 95 18.0 100 18.4 105 17.9 110 18.7 115 18.8 120 19.8 140 20.8 160 22.3 200 22.8 260 23.0 320 22.8 260 23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15	26	2402/50	200	4	17.8	80
18.2 95 18.0 100 18.4 105 17.9 110 18.7 115 18.8 120 19.8 140 20.8 160 22.3 200 22.8 260 23.0 320 22.8 260 23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20	(continued)			(1/2 in oven	) 17.8	85
18.0 100 18.4 105 17.9 110 18.7 115 18.8 120 19.8 140 20.8 160 22.3 200 22.8 260 23.0 320 23.5 380 24.4 440 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					17.9	90
18.4 105 17.9 110 18.7 115 18.8 120 19.8 140 20.8 160 22.3 200 22.8 260 23.0 320 23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					18.2	95
17.9 110 18.7 115 18.8 120 19.8 140 20.8 160 22.3 200 22.8 260 23.0 320 23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					18.0	100
18.7 115 18.8 120 19.8 140 20.8 160 22.3 200 22.8 260 23.0 320 23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					18.4	105
18.8 120 19.8 140 20.8 160 22.3 200 22.8 260 23.0 320 23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					17.9	110
19.8 140 20.8 160 22.3 200 22.8 260 23.0 320 23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					18.7	115
20.8 160 22.3 200 22.8 260 23.0 320 23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					18.8	120
22.3 200 22.8 260 23.0 320 23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					19.8	140
22.8 260 23.0 320 23.5 380 24.4 440 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					20.8	160
23.0 320 23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					22.3	200
23.5 380 24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					22.8	260
24.4 440 24.4 500 27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					23.0	320
27 2402/50 200 4 0.0 0 2.5 5 4.5 10 8.8 15 10.4 20					23.5	380
27     2402/50     200     4     0.0     0       2.5     5       4.5     10       8.8     15       10.4     20					24.4	440
2.5 5 4.5 10 8.8 15 10.4 20					24.4	500
4.5108.81510.420	27	2402/50	200	4	0.0	0
8.8 15 10.4 20					2.5	5
10.4 20					4.5	10
					8.8	15
12.5 25					10.4	20
					12.5	25
13.0 30					13.0	30
13.5 35					13.5	35
14.2 40					14.2	40
15.3 45					15.3	45
16.1 50					16.1	50
17.2 55					17.2	55

TEST NO.	HALON/FILL	OVEN TEMP	SENSOR <sup>b</sup>	PRESSURE	TIME
	%	°F		PSIG	(SEC)
27	2402/50	200	4	18.6	60
(continued)				19.0	65
				20.3	70
				20.7	75
				21.4	80
				22.2	85
				23.0	90
				28.0	95
				29.2	100
				27.0	105
				27.2	110
				27.8	115
	•			28.6	120
				30.0	140
				31.0	160
				36.1	200
				37.2	250
				38.4	310
				39.0	370
				39.8	430
				39.8	490
28	2402/50	100	1	0.1	0
				1.5	5
				2.9	10
				3.3	15
				3.8	20
				3.9	25
				4.1	30

TEST NO.	HALON/FILL	OVEN TEMP	SENSOR <sup>b</sup>	PRESSURE	TIME
	%	°F		PSIG	(SEC)
28	2402/50	100	1	4.6	60
(continued)				5.0	90
				5.2	120
				5.2	150
				5.3	180
				5.3	240
29	2402/50	150	1	0.0	0
				2.5	5
				3.9	10
				6.4	15
				7.3	20
				7.8	25
				8.0	30
				9.6	40
				10.3	50
				11.0	60
				15.0	90
				16.2	120
				16.6	160
		to respect to the		15.1	220
				15.0	280
30	2402/50	200	1	0.3	0
				2.0	5
				5.1	10
				6.7	15
				8.5	20
				10.2	25
				12.5	30
				15.6	40

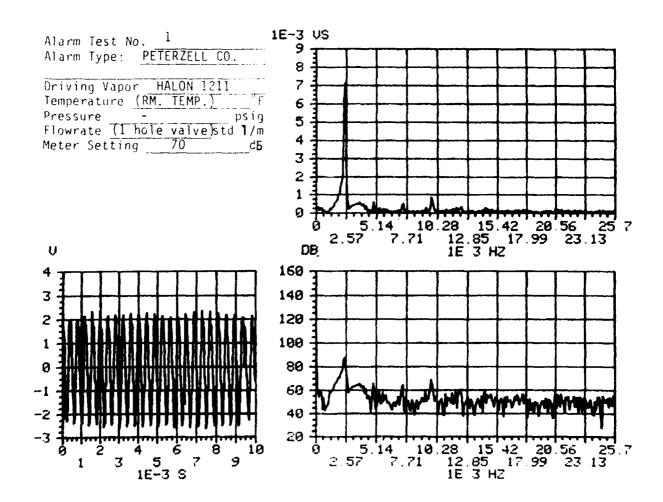
TEST NO.	HALON/FILL %	OVEN TEMP °F	SENSOR <sup>b</sup>	PRESSURE PSIG	TIME (SEC)
30	2402/50	200	1	18.9	50
(continued)				21.8	60
•				29.7	90
				35.0	120
				37.1	150
				38.7	180
				40.0	210
				41.3	240
				43.0	290
				43.7	350
				43.9	410
				44.2	470
31	2402/50	200	1	0.1	0
			(1/2 in ove		5
				2.5	10
				3.2	15
				4.4	20
				6.0	25
				7.8	30
				9.7	40
				14.0	50
				16.1	60
				21.3	90
				23.5	120
				25.0	150
				25.9	180
				26.5	210
				27.2	250
				27.5	310
				28.0	370

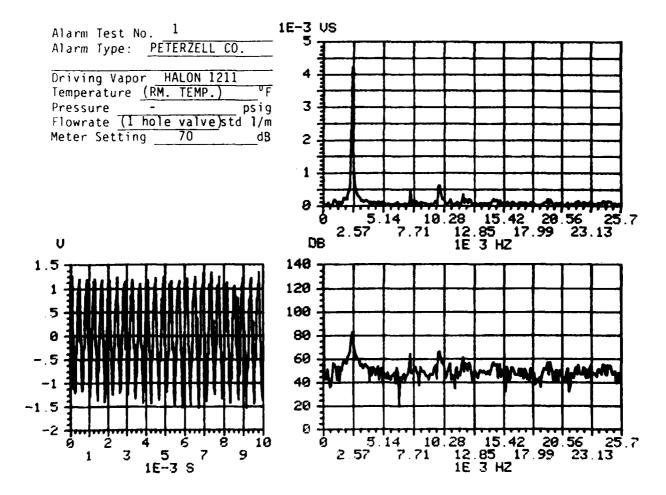
TEST NO.	HALON/FILL %	OVEN TEMP °F	SENSOR <sup>b</sup>	PRESSURE PSIG	TIME (SEC)
31	2402/50	200	1	28.5	430
(continued)				28.7	490
				28.9	550
				28.8	610

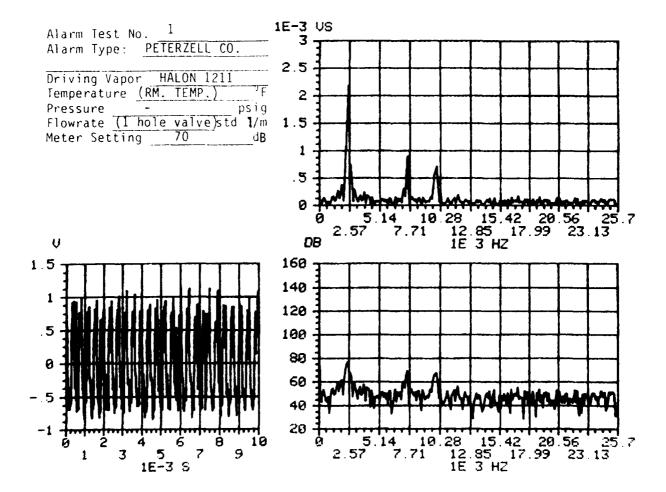
<sup>a</sup>Kulite Model XST-190-1000 SENSORS<sup>b</sup>

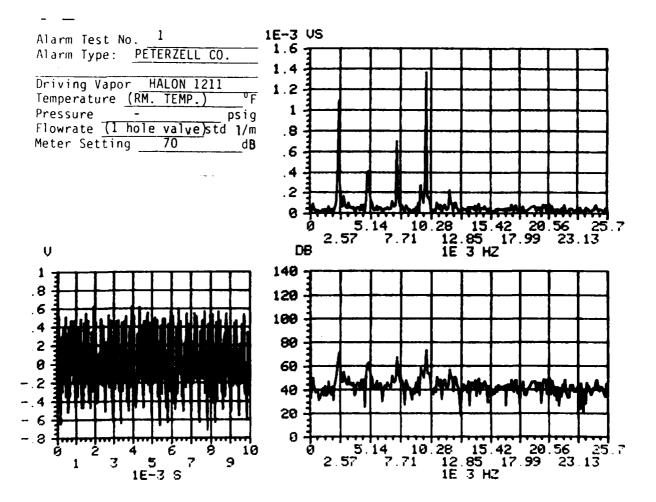
- 1. 1/4" diameter straight copper tube 20" length 255°F fusible link.
- 2. 1/8" diameter straight copper tube 20" length 255°F fusible link.
- 1/4" diameter copper tube 40" length with 180° bend at midpoint 255°F fusible link.
- 4. 1/8" diameter straight copper tube 10" length 255°F fusible link.

#### ACOUSTIC COUPLING ALARM TESTS









1E-3 VS Alarm lest No. \_ 2 Alarm Type: PETERZELL CO. 12 7 10 -Driving Vapor HALON 1211 Iemperature (RM. TEMP) 1
Pressure - psig
Flowrate (2 hole valve) std 1/m
Meter Setting 70 dB 8 -6 . 2 0 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB U 160 140 3 120 -2 100 -80 -60 40 20 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 9 5 1E-3 S

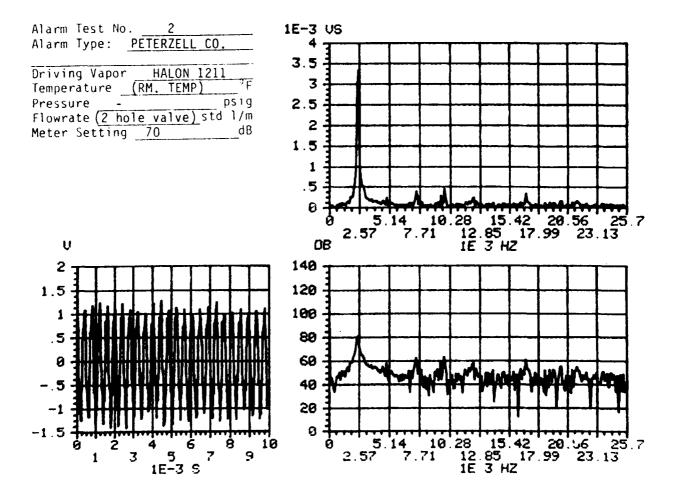
Alarm Type: PETERZELL CO. 9 8 Driving Vapor HALON 1211 Temperature (RM. TEMP) 6 Pressure Flowrate (2 hole valve) std 1/m 5 Meter Setting 70 3 2 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 160 2.5 140 120 100 80

> **60** 40 20

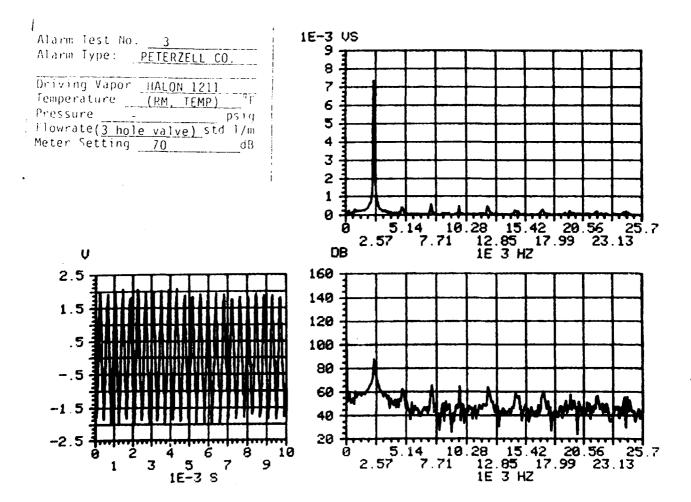
5 1E-3 S 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ

1E-3 VS

Alarm Test No.

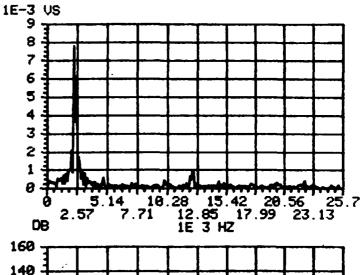


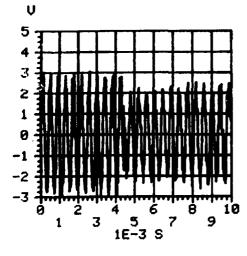
Alarm Test No. 1E-3 US Alarm Type: PETERZELL CO 3 2.5 Driving Vapor **HALON 1211** Temperature \_ (RM. TEMP) 2 Pressure psig Flowrate (2 hole valve) std 1/m 1.5 Meter Setting 70 1 .5 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB V 160 1.2 140 .8 120 100 80 60 40 20 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 5 1E-3 S 3

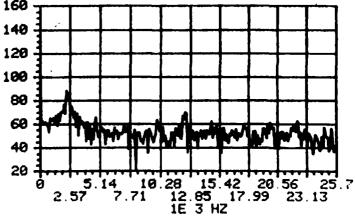


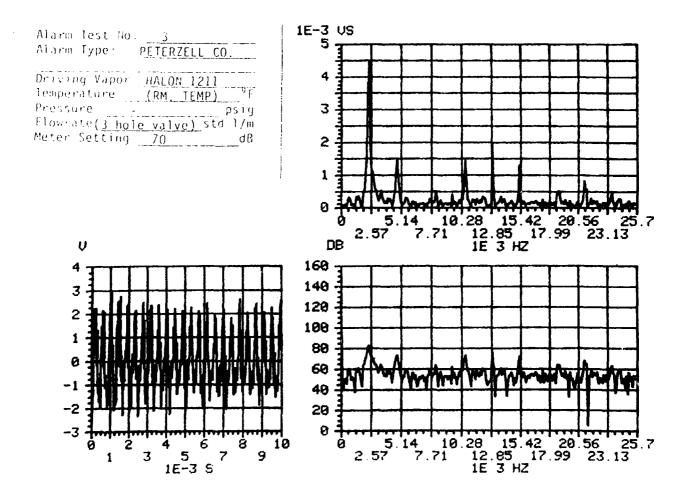
Alarm Test No. 3
Alarm Type: PETERZELL CO.

Driving Vapor HALON 1211
Temperature (RM, TEMP) F
Pressure - psig
Flowrate(3 hole valve) Std 1/m
Meter Setting 70 dB









Alarm Test No. Alarm Type: PETERZELL CO 3 Driving Vapor HALON 1211
Temperature (RM, TEMP) 2.5 Pressure psig 2 -Flowrate(3 hole valve) std 1/m 1.5 Meter Setting 70 1 -.5 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 160 140 120 100 80 60

> 40 20

9

-1.5

5 1E-3 S

3

5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ

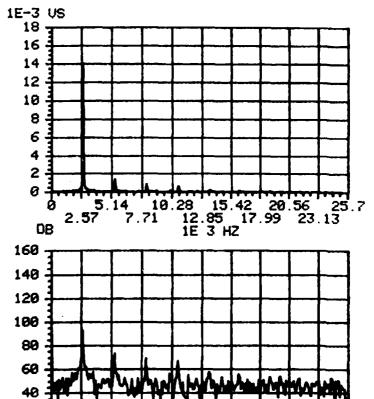
1E-3 VS

1E-3 US Alarm Test No. PETERZELE CO. Alarm Type: 16 -14 Oriving Vapor FREON 12

Temperature (RM. TEMP) of Pressure psig Flowrate (2 hole valve) std 1/m Meter Setting 70 d8 12 10 8 6 4 2 Ø 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB U 140 120 3 100 2 80 60 -2 40 -3 20 10.28 15.42 20.56 25.7 1 12.85 17.99 23.13 1E 3 HZ 5.14 10 2.57 7.71 9 3 1E-3 S

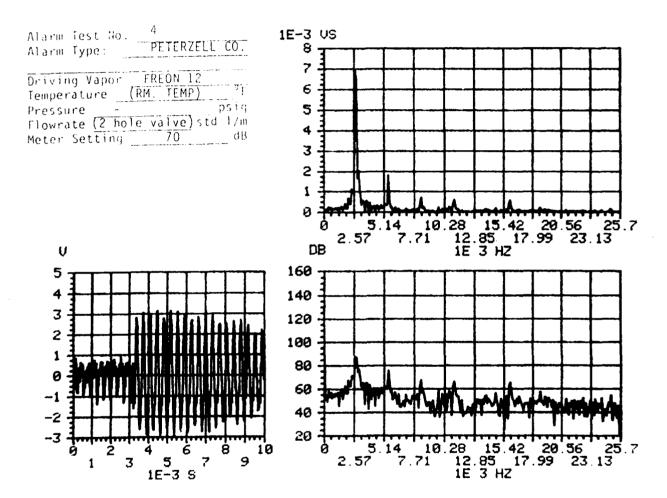
Alarm Test No. 4
Alarm Type: PETERZELL CO.

Driving Vapor FREON 12
Temperature (RM. TEMP) Pressure psig
Flowrate (2 hole valve) std 1/m
Meter Setting 70 dB



5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ

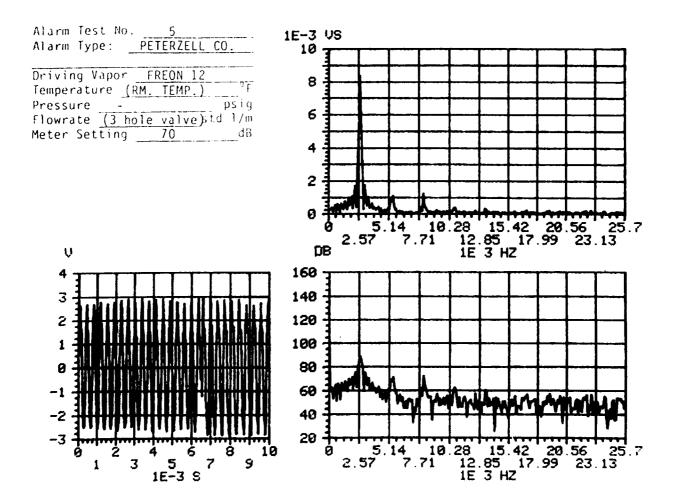
20



Alarm Test No. 1E-3 US PETERZELL CO. Alarm Type: 18 16 Driving Vapor FREON 12 Temperature (RM. TEMP) 14 12 psig Pressure Flowrate (2 hole valve) std 1/m 10 Meter Setting 70 8 6 4 2 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB V 120 100 80 60 40 20 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 5 1E-3 S

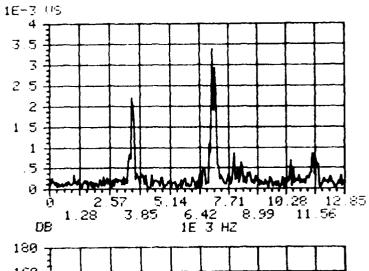
Alarm Test No. 5 1E-3 US Alarm Type: PETERZELL CO. Driving Vapor FREON 12 Temperature (RM. TEMP.) F
Pressure - psig
Flowrate (3 hole valve btd 1/m
Meter Setting 70 d8 3 -2 -5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB V 160 5 -140 120 100 -0 80 -60 40 -3 20 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 4 6 5 1E-3 S 3

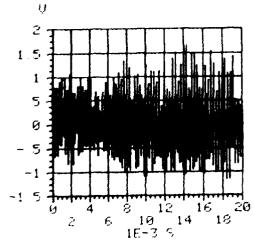
Alarm Test No. 1E-3 US Alarm Type: PETERZELL CO. Driving Vapor FREON 12 Temperature (RM. TEMP.) Pressure - psig Flowrate (3 hole valve)std 1/m Meter Setting \_\_\_ 5.14 10.28 15.42 26.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB Ų 60 -5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 1E-3 S 

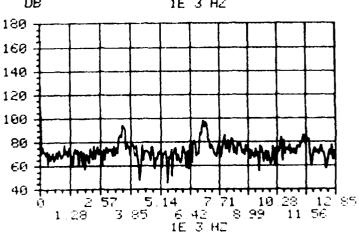


Alarm Test No. 1E-3 VS Alarm Type: PETERZELL CO Driving Vapor FREON 12 Temperature (RM. TEMP.) Pressure psig Flowrate (3 hole valve) std 1/m 3 Meter Setting 2 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB V 1.5 160 140 120 100 80 60 40 20 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 5 1E-3 S 9 3

Alarm Test No.	61
Alarm Type:	QUALCO
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	77
Pressure	26 ps 19
Flowrate	19.7 std 1/m
Meter Setting	90 dB







Alarm Test No. 6A

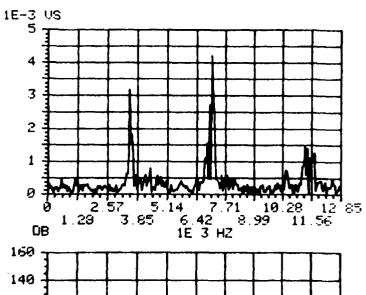
Alarm Type: QUALCO
PRODUCTS CO.

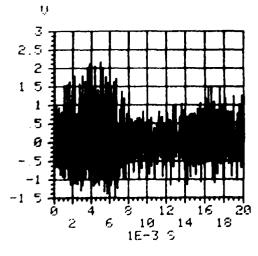
Driving Vapor FREON 12

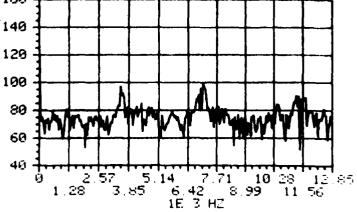
Temperature 77 °F

Pressure 26 psig
Flowrate 19.7 std 1/m

Meter Setting 90 dB



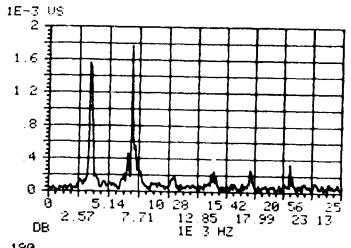


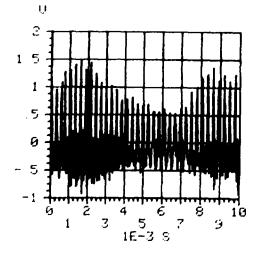


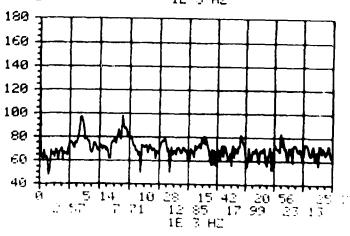
1E-3 US 6A Alarm Test No. 3 • QÜALCO Alarm Type: PRODUCTS CO. Driving Vapor 2.5 FREON 12 77 26 ps ig 19,7 s id i /m 2 lemperature Pressure 1.5 Flowrate Meter Setting 90 1 5.14 10 28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 0-1 80 IJ 2 189 160 1.5 140 1 120 Ø 100 80 60 · 40 1 10.28 15.42 20 56 25 7 .71 12 85 17.99 23 13 1E 3 HZ

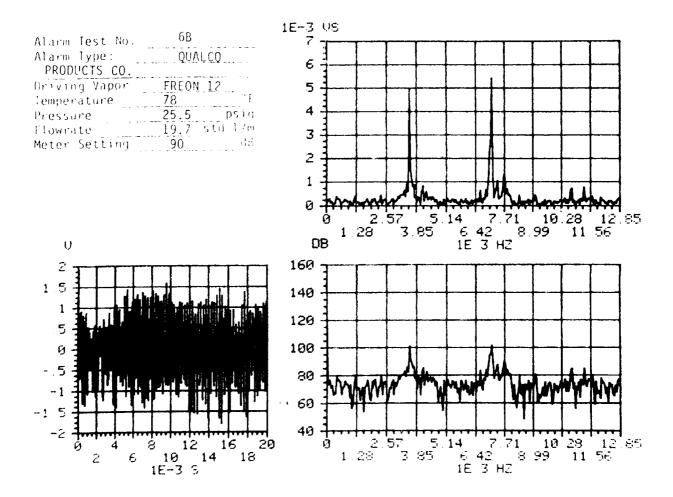
1E-3 3

Alarm Test No.	6A	
Alarm Type:	QUALCO	
PRODUCTS CO.		
Driving Vapor	FREON 12	
Temperature	77	0.1
Pressure	26	psig
Flowrate	19.7 std	1 / m
Meter Setting	90	dВ

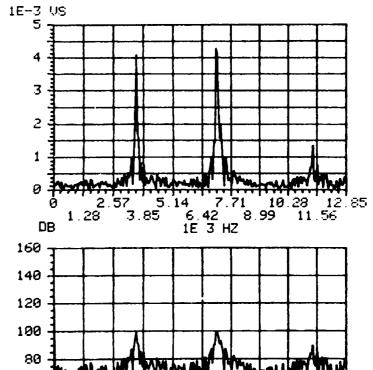




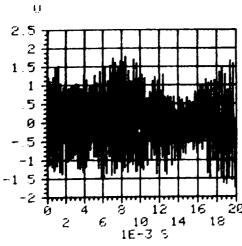




Alarm Test No.	6B
Alarm Type:	QUALCO
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	78 ° F
Pressure	25.5 psig
Flowrate	19.7 std 1/m
Meter Setting	90 dB



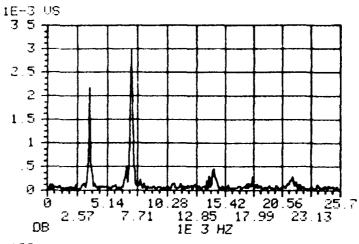
2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E.3 HZ

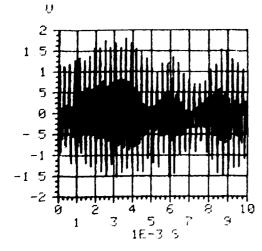


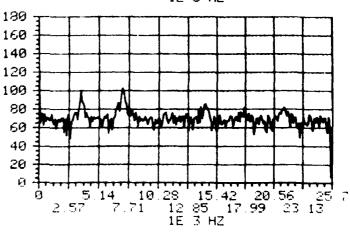
69 40

0

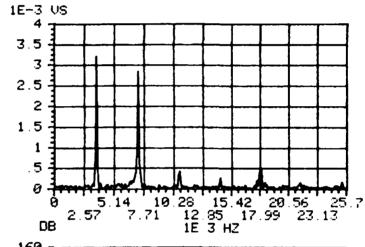
Alarm Test No.	68
Alarm Type: PRODUCTS CO.	QUALCO
Oriving Vapor Temperature	FREON 12
Pressure Flowrate	25.5 psig 19.7 std 1/m
Meter Setting	90 46
• • • • • • • • • • • • • • • • • • • •	

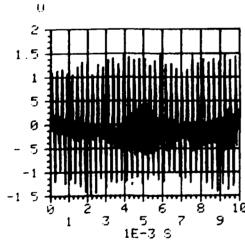


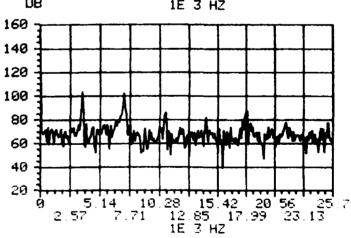




Alarm Test No.	6B
Alarm Type:	QUALCO
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	78 °F
Pressure	25.5psig
Flowrate	19.7 std 1/m
Meter Setting	90 dB

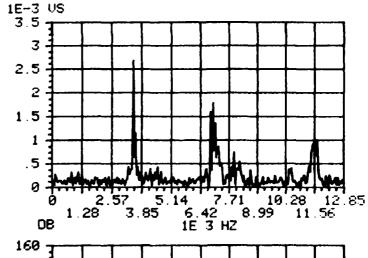


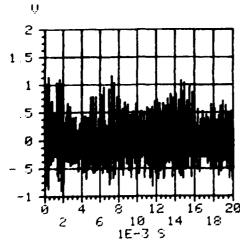


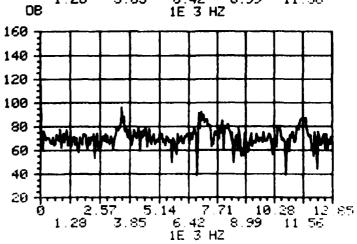


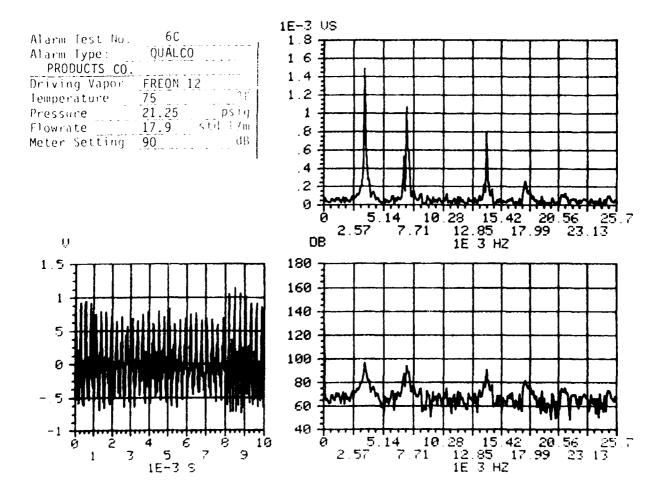
1E-3 US 6 C 4.5 -Alarm Test No. Alarm Type: QUALCO PRODUCTS CO. 3.5 3 2.5 2 -1.5 1 5 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB Ų 160 2 7 1.5 140 120 100 80 Ø 60 40 20 -1 5 2.57 5.14 7.71 10 28 12.85 1.28 3.85 6.42 8.99 11 56 1E 3 HZ 8 12 16 10 14 18 1E-3 3

6C Alarm Test No. QUALCO Alarm Type: PRODUCTS CO. FREON 12 Driving Vapor 75 Temperature psig Pressure 17.9 std 1/m Flowrate 90 Meter Setting

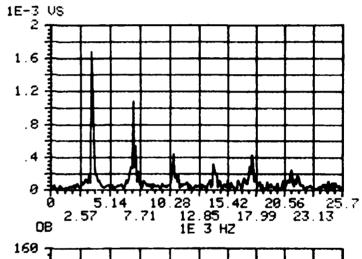


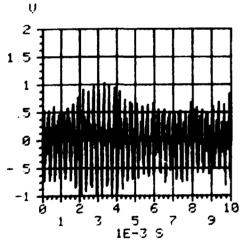


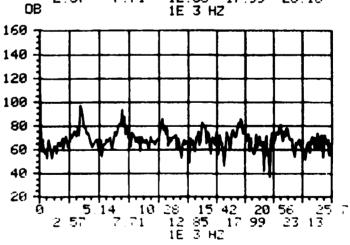




Alarm Test No.	6C	
Alarm Type:	QUALCO	
PRODUCTS CO.		_
Driving Vapor	FREON 12	
Temperature	75 °	F
Pressure	21.25 psi	g
Flowrate	17.9 std 1/	nι
Meter Setting	90 d	В







Alarm Test No. \_\_\_ 6D E Alarm Type: PRODUCTS CO. Driving Vapor FREON 12
Temperature 79 Temperature \_\_\_\_ psig Pressure 16 3 std 1/m Flowrate Meter Setting 90 2 1 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB Ų 180 25 2 160 1 5 140 1 120 5 100 Ø 89 5 60

40

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10 14 1E-3 S 57 5.14 7.71 10.28 3.85 6.42 8.99 11 1E 3 HZ

12 85

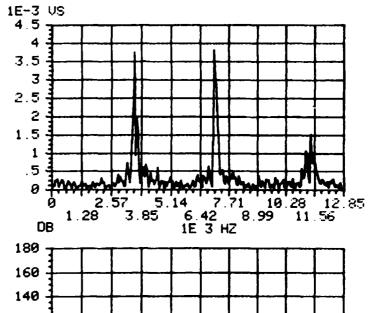
56

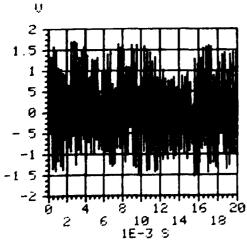
1E-3 US

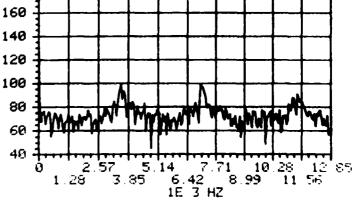
-1.5

2

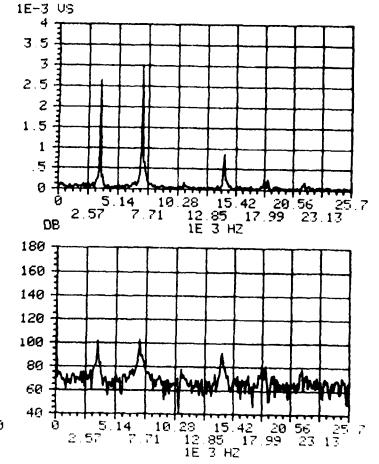
6D Alarm Test No. QUALCO Alarm Type: PRODUCTS CO. FREON 12 Driving Vapor Temperature psig Pressure 16 std 1/m Flowrate 90 dB Meter Setting

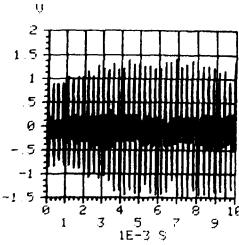




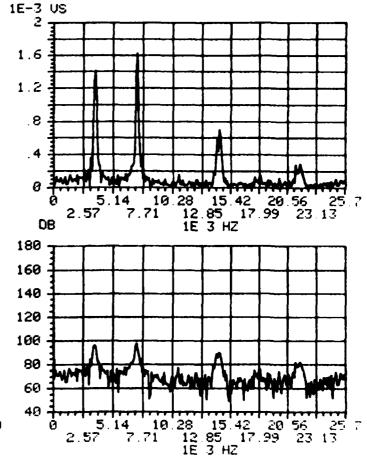


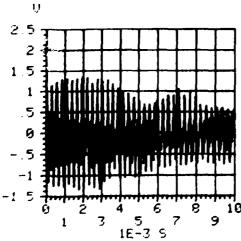
Alarm Test No. 6D Alarm Type: QUALCO PRODUCTS CO. Driving Vapor\_ FREON 12 79 Temperature 17 Pressure psig 16 Flowrate std 1/m 90 Meter Setting \_dB





Alarm Test No. 6D Alarm Type: QUALCO PRODUCTS CO. Driving Vapor FREON 12 Temperature 17 Pressure psig 16 Flowrate std 1/m Meter Setting 90 dB





1E-3 US 6E Alarm Test No. 8 7 Alarm Type: PRODUCTS CO. QUAL CO 6 Driving Vapor FREON 12 Temperature 81 5 12.75 psig Pressure 4 14.08 std 1/m Flowrate Meter Setting 90 3 2 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB ij 160 2.5 2 140 1.5 120 1 . 5 100 Ø 89  $\epsilon 0$ 40 -1 5 2.57 5.14 7.71 10.28 12 85 1 28 3.85 6.42 8.99 11.56 1E 3 HZ 16 10 14 18 1E-3 S

 Alarm Test No.
 6E

 Alarm Type:
 QUALCO

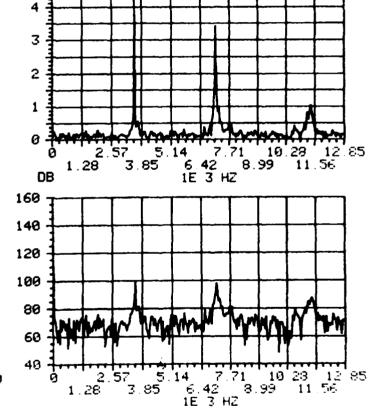
 PRODUCTS CO.
 PREON 12

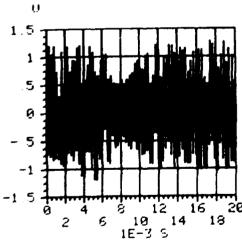
 Temperature
 81

 Pressure
 12.75
 psig

 Flowrate
 14.08
 std 1/m

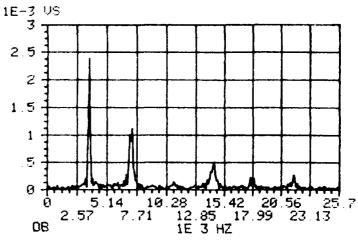
 Meter Setting
 90
 dB

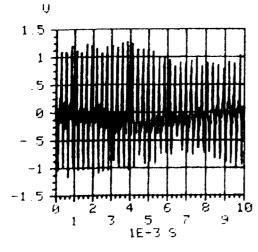


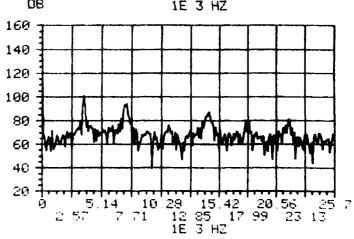


1E-3 VS

Alarm Test No.	6L
Alarm Type:	QUALCO
PRODUĆTS CO.	
Driving Vapor	FREON 12
Temperature	81 F
Pressure	12.75 psig
Flowrate	14.08 std 1/m
Meter Setting	90 dB



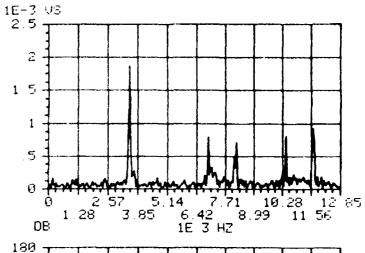


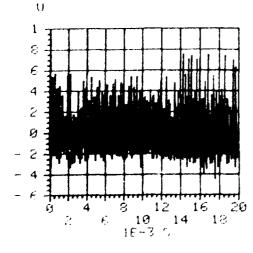


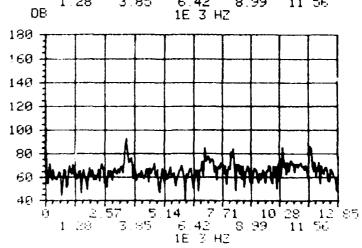
1E-3 US 6E Alarm Test No. QUALCO Alarm Type: 2.5 PRODUCTS CO. Driving Vapor FREON 12 2 Temperature Pressure \_ 12.75 psig 1.5 14.08 std 1/m Flowrate 90 dB Meter Setting 1 .5 Ø 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ OB Ų 180 2 -160 1.5 140 120 100 0 80 - .5 60 -1 -1.5 49 5,14 10,28 15,42 20,56 25 7 2 57 7,71 12,85 17,99 23,13 1E 3 HZ 4 6 5 1E-3 5

Alarm lest les. 61
Alarm Type: QUALCO
PRODUCTS CO.

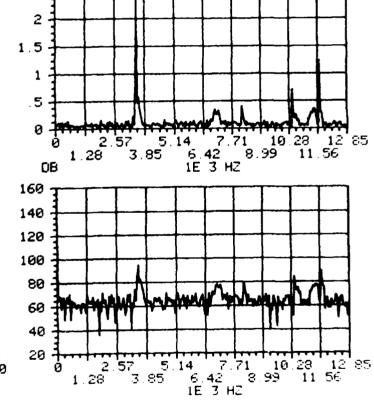
Driving Vapor FREON 12
Temperature 76
Pressure 8.5 psi 1
Flowrate 10.9 still 68
Meter Setting 90 48

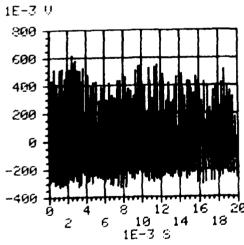






Alarm Test No.	6F	
Alarm Type:	QUA	_CO
PRODUCTS CO.		
Driving Vapor	FREON	12
Temperature	76	F.
Pressure	8.5	psig
Flowrate	10.9	std 1/m
Meter Setting	90	dB

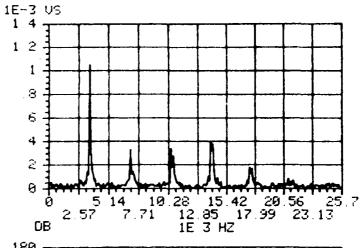


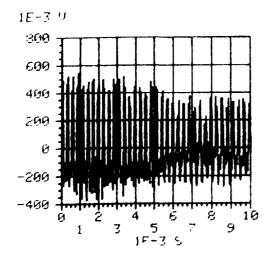


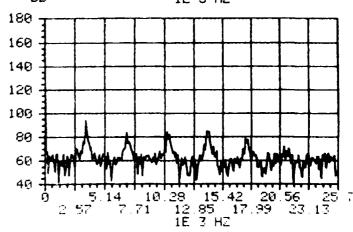
1E-3 US

2.5

Alima lest No.	6 F	
Alarm Type:	QUALCO	
PRODUCTS CO.		
Brigin; Capor	FREON	12
lemperiture	76	,
Pressure	8.5	psig
flowrite	10.9	sed in
Meter Jetting	90	18
		• •

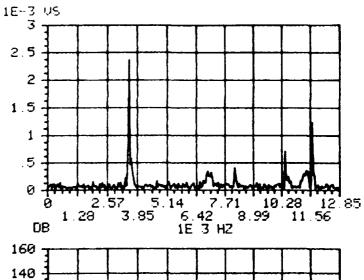


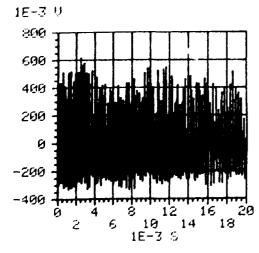


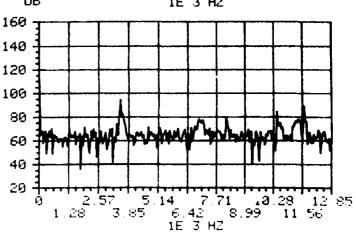


1E-3 VS Alarm Test No. 6F Alarm Type: QUALCO PRODUCTS CO. 1.2 Driving Vapor FREON 12 1 76 Temperature Pressure 8.5 psig . 8 Flowrate 10.9 std 1/m 90 Meter Setting . 2 5.14 10.28 15.42 20.56 25 7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 80 1E-3 U 160 600 140 400 120 100 80 60 · -200 40 20 5.14 10 28 15.42 20 56 25 7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ ີ 5 1E-3 S

Alarm Test No.	66
Alarm Type:	QUALCO
PRODUCTS CO.	
Driving Vapor _	FREON 12
Temperature	76 °F
Pressure	8.25 psig
Flowrate	10.3 std 1/m
Meter Setting	90 dB







To an indicated the second representation of the proposition of the property of the passes

 Alarm Test No.
 6G

 Alarm Type:
 QUALCO

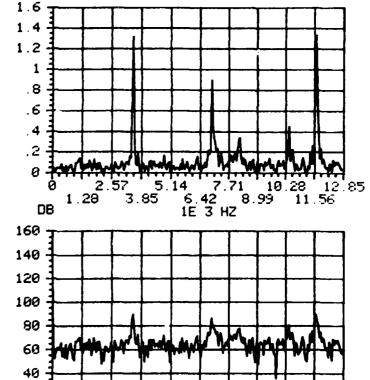
 PRODUCTS CO.
 FREON 12

 Temperature
 76
 F

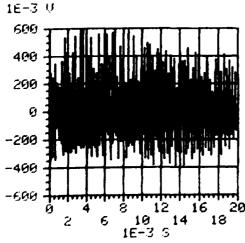
 Pressure
 8.25
 psig

 Flowrate
 10.9
 std 1/m

 Meter Setting
 90
 dB



2.57 5.14 7.71 10.28 12.85 8 3.85 6.42 8.99 11.56 1E 3 HZ

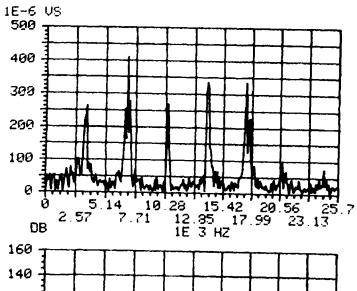


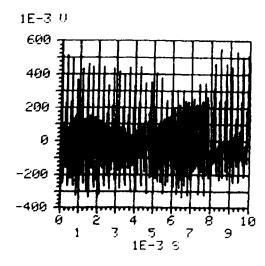
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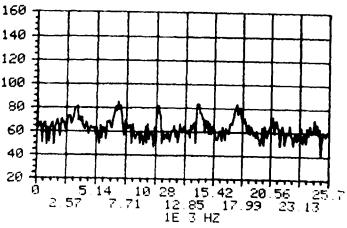
1.28

1E-3 VS

Alarm Test No. Alarm Type:	QUALCO QUALCO
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	76 °F
Pressure	8.25 psig
Flowrate	10.9 std 1/m
Meter Setting	90 dB







Alarm Test No. 6G

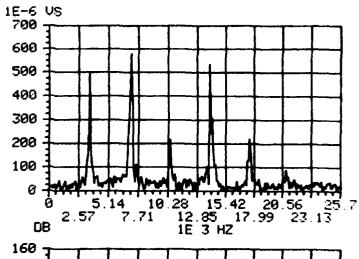
Alarm Type: QUALCO
PRODUCTS CO.

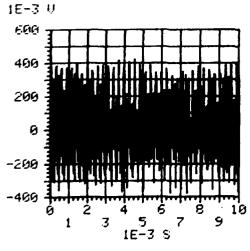
Driving Vapor FREON 12

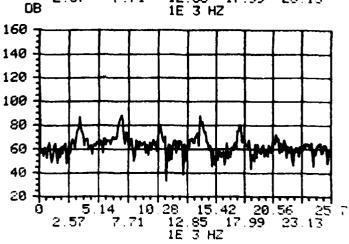
Temperature 76 F

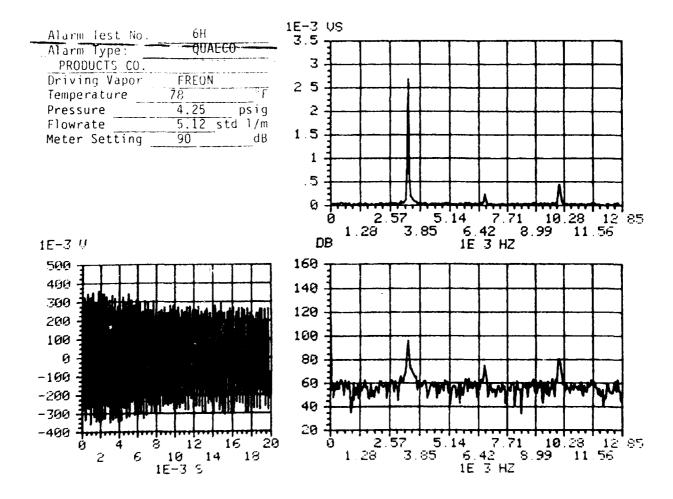
Pressure 8.25 psig
Flowrate 10.9 std 1/m

Meter Setting 90 dB





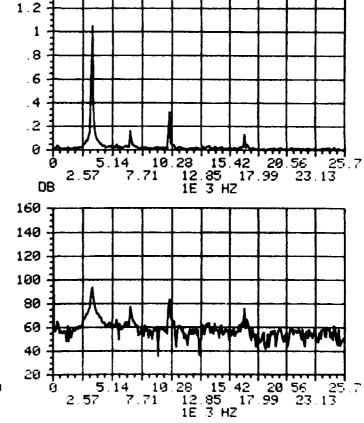


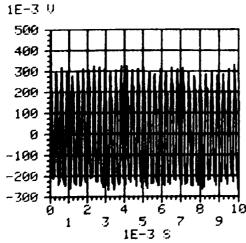


1E-3 VS Alarm Test No. 6Н 2.5 QUALCO Alarm Type: PRODUCTS CO. 2 FREON Driving Vapor Temperature 78 Pressure 4.25 psig 1.5 5.12 std 1/m Flowrate Meter Setting 90 1 . 5 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 0 1E-3 U 80 599 160 -400 140 300 120 200 100 100 80 Ø 60 -199 40 -260 -366 20 -8 12 10 14 1E-3 S 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ ġ 16

Alarm Test No. 6H Alarm Type: QUALCO PRODUCTS CO. Driving Vapor FREON Temperature 78 Pressure 4.25 psig Flowrate 5.12 std 1/m Meter Setting 90 dB	1E-3 US  1 8  1 6  1 4  1 2  1  8  6  4  2  0
1E-3 <sup>1</sup> / <sub>2</sub>	0 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 DB 1E 3 HZ
399	160
199 <del>- 1</del>	120 100 80
-300	60 40
-500 <del>                                    </del>	20 <del>                                     </del>

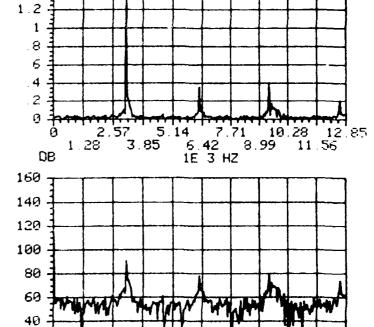
6Н
QUALCO
FREON
78 °F
4.25 psig
5.12 std 1/m
90 dB





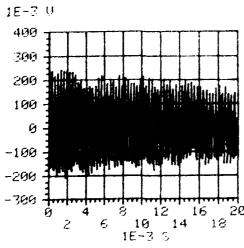
1E-3 US

Alarm lest No.	51
Alarm Type:	QUYECO
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	73 F
Pressure	2.5 psig
Flowrate	1.92 std 1/m
Meter Setting	90 dB



2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E.3 HZ 《《中国》中的《中国》中的《中国》中的《中国》中的《中国》中国《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》中的《中国》

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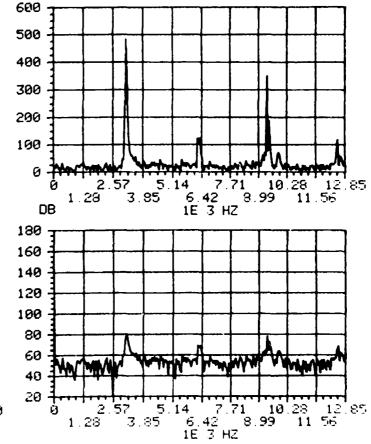
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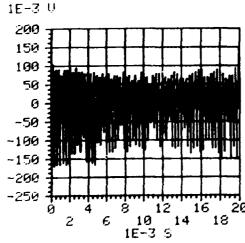
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1E-3 US 1.8 1.6

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6 I Alarm Test No. QUALCO Alarm Type: PRODUCTS CO. FREON 12 Driving Vapor Temperature psig Pressure 1.92 std 1/m Flowrate Meter Setting 90

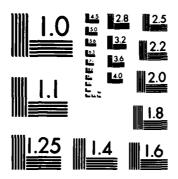




1.28

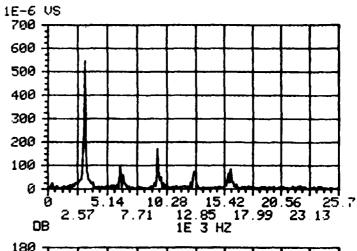
1E-€ US

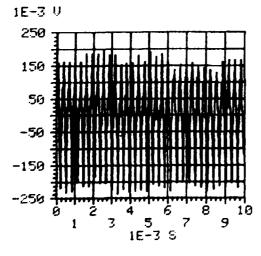
SELECTIVE AUTOMATIC FIRE EXTINGUISHER FOR CLASS A HITH NOTIFICATION (SAFE. (U) NEM MEXICO ENGINEERING RESEARCH INST ALBUQUERQUE C H HILSON ET AL MAY 8 NMERI-TA3-1-001-2 AFESC/ESL-TR-83-87-VOL-2 F/G 13/12 AD-8130 331 UNCLASSIFIED NL

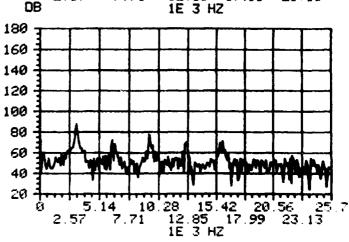


MICROCOPY RESOLUTION TEST CHART NATIONAL BUREAU OF STANDARDS-1963-A

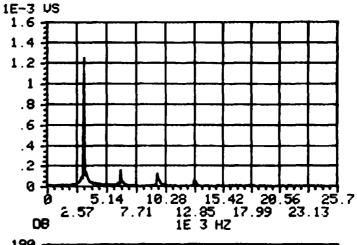
Alarm Test No.	61	
Alarm Type:	QUA	ALCO
PRODUCTS CO.		
Driving Vapor	FREO	N 12
Temperature	73	F
Pressure	2.5	psig
Flowrate	1.92	std 1/m
Meter Setting	90	dB

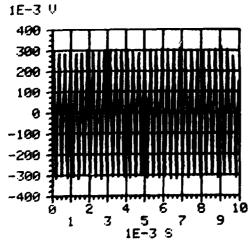


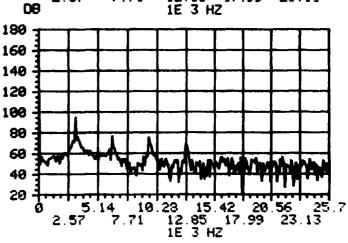




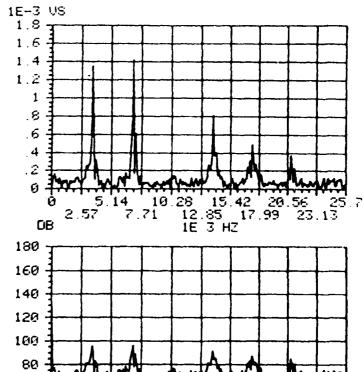
6 I Alarm Test No. QUALCO Alarm Type: PRODUCTS CO Driving Vapor FREON 12 73 Temperature 2.5 psig Pressure 1.92 std 1/m Flowrate Meter Setting

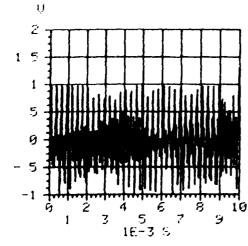




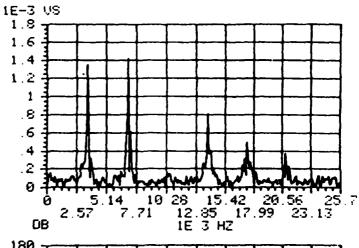


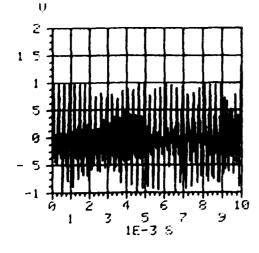
Alarm Test No.	. 7A
Alarm Type:	QUALCO
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	64 °F
Pressure	23 psig
Flowrate	19.2 std 1/m
Meter Setting	90 dB

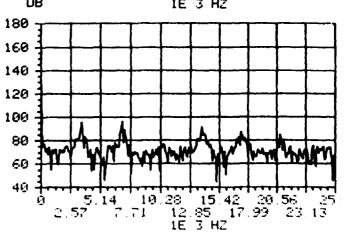




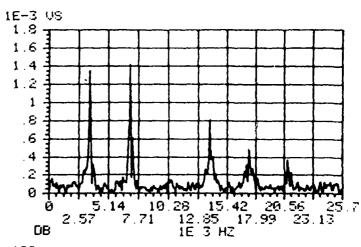
Alarm Test No. 7 A QUALCO Alarm Type: PRODUCTS CO. FREON 12 Driving Vapor 64 Temperature 23 psig Pressure std 1/m 19.2 Flowrate dB Meter Setting 90

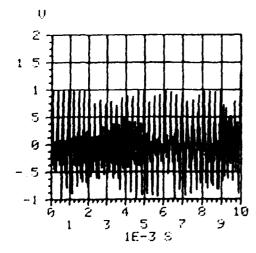


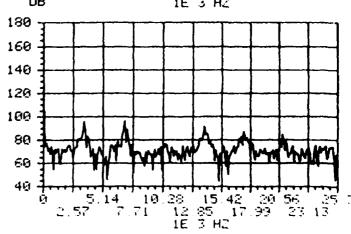




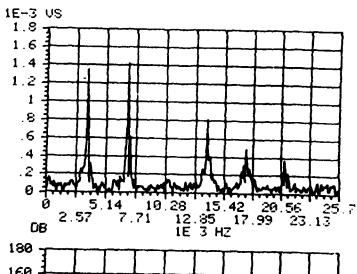
Alarm Test No.	7A	
Alarm Type: _	QUA	ALCO
PRODUCTS CO.		
Driving Vapor	FREON	12
Temperature _	64	o Ł
Pressure	23	psig
Flowrate	19.2	std 1/m
Meter Setting	90	dB

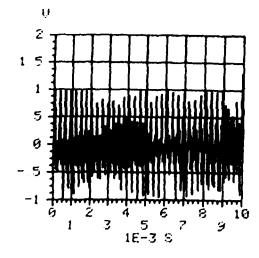


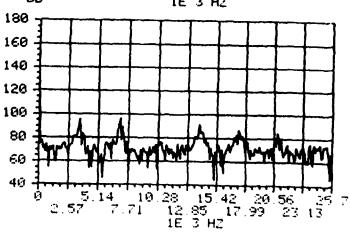




Alarm Test No.	. 7A	
Alarm Type:	QU.	ALCO
PRODUCTS CO.		
Driving Vapor	FREON	12
Temperature	64	0 F
Pressure	23	psig
Flowrate	19.2	std 1/m
Meter Setting	90	dB

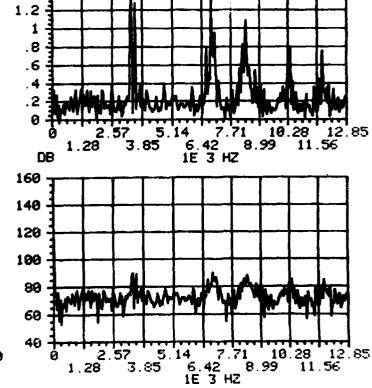






Alarm Test No. 7B Alarm Type: QUALCO	1E-3 V	is	<del></del>	T			<del></del>	,			
PRODUCTS	2.5			<b></b>		-	-		-		
Driving Vapor FREON 12				1			İ				
Temperature 77 ressure 24 psig	2 1			1		H-	<del>                                     </del>				
Pressure 24 psig Flowrate 18.56 std 1/m	$1.5\frac{1}{3}$			1							
Meter Setting 90 dB	1.73										
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1 .5	160 140 120 100 80	M4	2 57	5	74/14	4	<b>W</b>	M*	28	12	85
5 9 - 5	160 140 120 100 80	<b>hy/4</b>	2.57	585	<b>M</b> M	4	<b>///-</b>	10 99	28	12.56	.85

Alarm Test No.		
Alarm Type:	QUALCO	
PRODUCTS		
Driving Vapor	FREON	12
Temperature _	77	, F
Pressure	24	psig
Flowrate	18.56	_std 1/m
Meter Setting	90	dB



1E-3 US 1.8 1.6 1.4 Alarm Test No. \_\_7B 1 -Alarm Type: QUALCO **PRODUCTS** 8 Driving Vapor Temperature 6 Pressure 24 psig 18.56 std 1/m Flowrate Meter Setting \_\_\_\_90 dB .2 Ø .14 10.28 15.42 20.56 25.7 7.71 12.85 17.99 23.13 1E 3 HZ 0B IJ 160 140 120 199 89 60 -1

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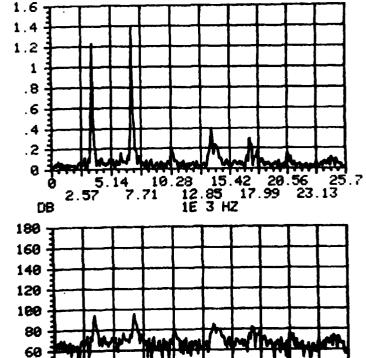
5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23 13 1E 3 HZ

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1E-3 US

7B Alarm Test No. QUALCO Alarm Type: **PRODUCTS** Driving Vapor FREON 12 Temperature 77 Pressure 24 psig 18.56 std 1/m Flowrate Meter Setting 90

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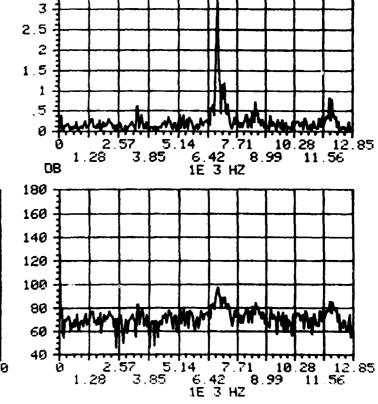


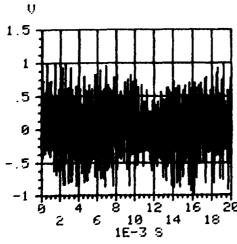
5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ

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1E-3 VS

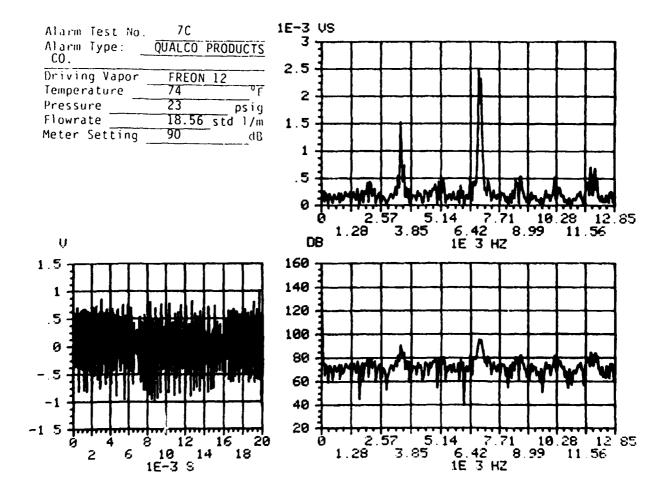
Alarm Test No.	/C
Alarm Type:	QUALCO PRODUCTS
<u>co.</u>	
Driving Vapor	FREON 12
Temperature	74
Pressure	23 psig
Flowrate	18.56 std 1/m
Meter Setting	90 dB

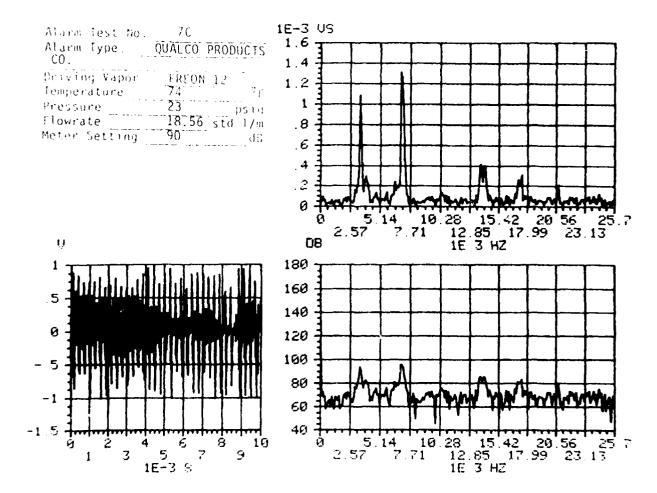




1E-3 US

3.5





Alarm Test No. 7C

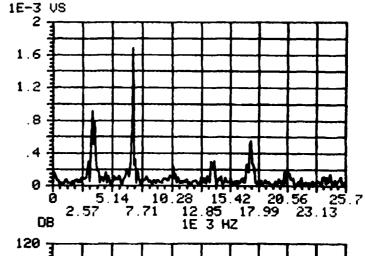
Alarm Type: QUALCO PRODUCTS
CO. FREON 12

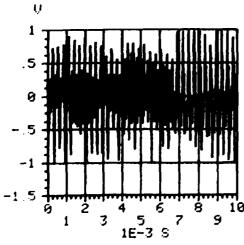
Temperature 74 F

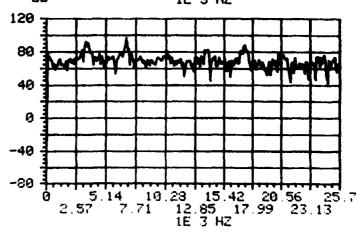
Pressure 23 psig

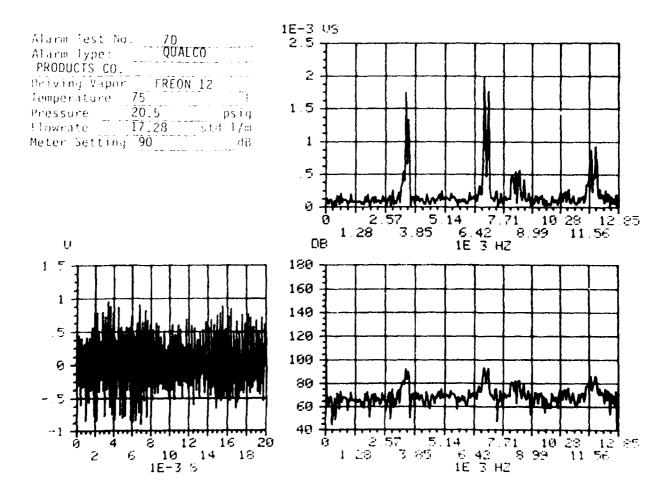
Flowrate 18.56 std 1/m

Meter Setting 90 dB

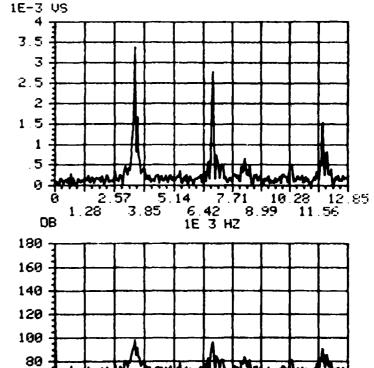




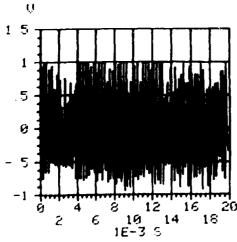




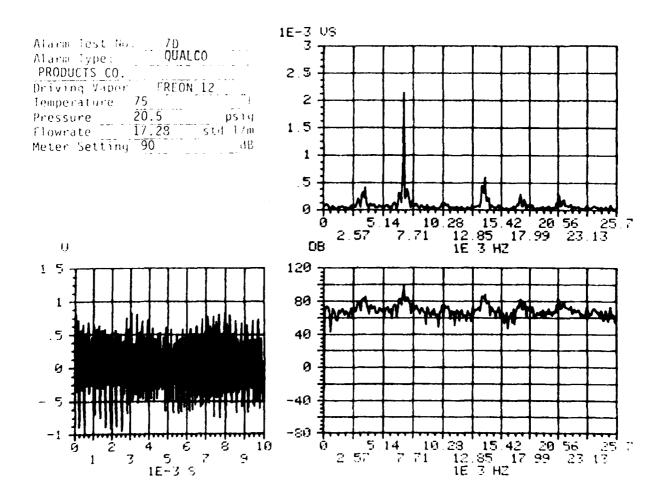
Alarm Test No. 7D
Alarm Type: QUALCO
PRODUCTS CO.
Driving Vapor FREON 12
Temperature 75
Pressure 20.5 psig
flowrate 17.28 std 1/m
Meter Setting 90 dB



2 57 5 14 7 71 10 28 12 85 1 28 3 85 6 42 8 99 11 56 1E 3 HZ



60 40



Alarm Test No. 7D

Alarm Type: QUALCO

PRODUCTS CO.

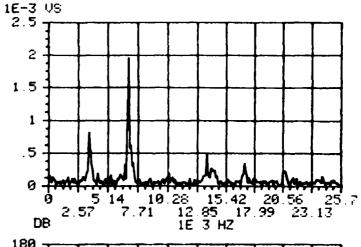
Driving Vapor FREON 12

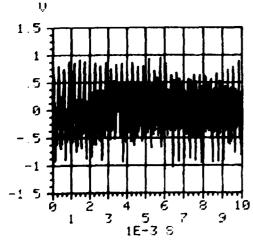
Temperature 75 °F

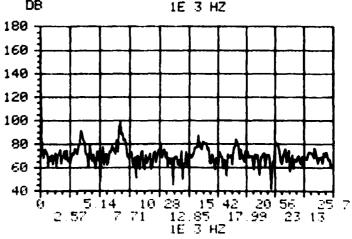
Pressure 20.5 psig

Flowrate 17.28 std 1/m

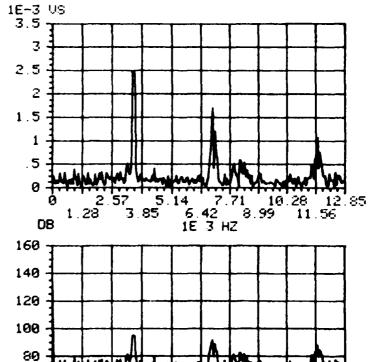
Meter Setting 90 d8







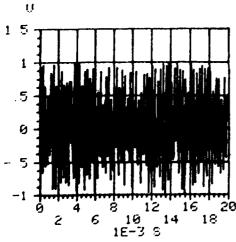
Alarm Test No. 7 E Alarm Type: PRODUCTS. CO. QUALCO Driving Vapor FREON 12 76 Temperature psig 16 Pressure 15.36 std 1/m Flowrate Meter Setting 90



2.57 5.14 7.71 10 1.28 3.85 6.42 8.99 1E.3 HZ

28 12 35 11 56

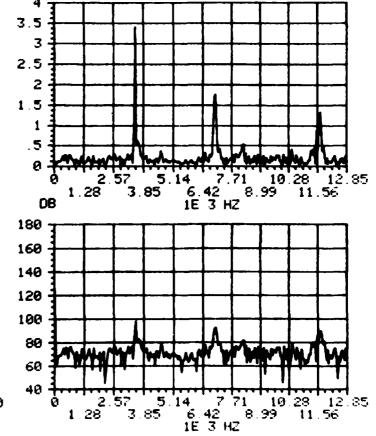
10 28



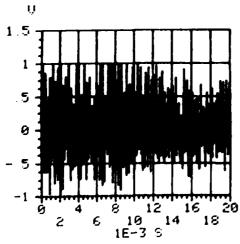
60

40

Alarm Test No.	/E
Alarm Type:	QUALCO
PRÓDUCTS.	CO.
Driving Vapor	FREON 12
Temperature	76 °F
Pressure	16 psig
Flowrate	15.36 std 1/m
Meter Setting	90 dB



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1E-3 VS

 Alarm Test No.
 7E

 Alarm Type:
 QUALCO

 PRODUCTS.
 CO.

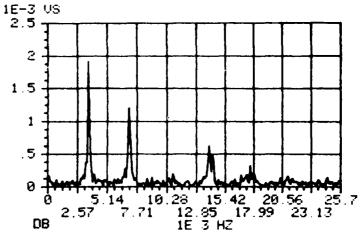
 Driving Vapor
 FREON 12

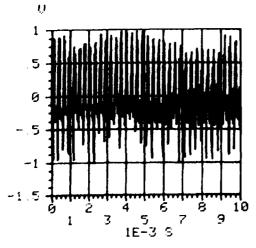
 Temperature
 76
 "F

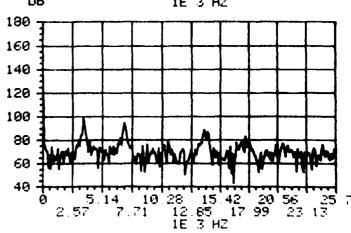
 Pressure
 16
 psig

 Flowrate
 15.36
 std 1/m

 Meter Setting
 90
 d8

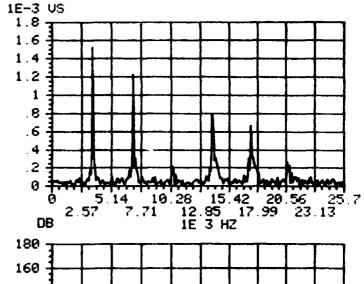


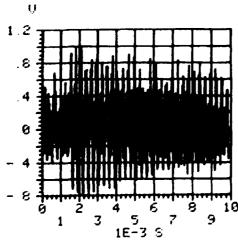


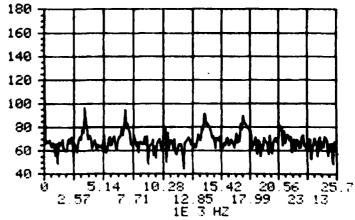


Alarm Test No.	7 E	
Alarm Type:	QUAL	CO
PRODUCTS.	CO.	
Driving Vapor	FREON	
Temperature	76	"F
Pressure	16	psig
Flowrate	15.36	std 1/m
Meter Setting	90	dB

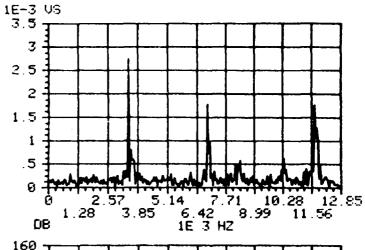
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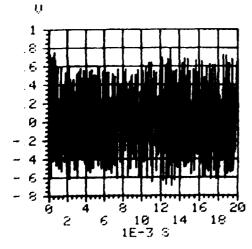


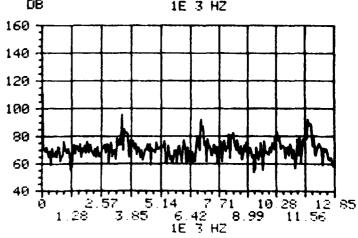




Alarm Test No.	7.1
Alarm Type:	QUALCO
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	75 F
Pressure	11.75 psig
flowrate	13.44 std 1/m
Meter Setting	90 dB







Alarm Test No. 1.6 QUALCO Alarm Type: PRODUCTS CO. 1.4 FREON 12 Driving Vapor 1.2 75 Temperature 1 . 11.75 psig Pressure Flowrate 13.44 std 1/m .8 Meter Setting 90 .6 . 4 .2 Ø 2.57 5.14 7.71 10.28 12.85 3 3.85 6.42 8.99 11.56 1E 3 HZ D8 Ų 160 1 8. 140 .6 120 .2 100 Ø 80 - . 2 -69

1E-3 VS

7F

8 12 10 14 1E-3 S

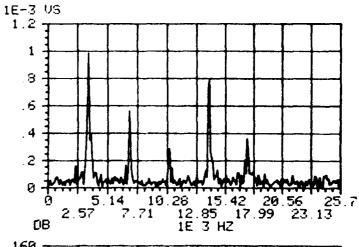
40

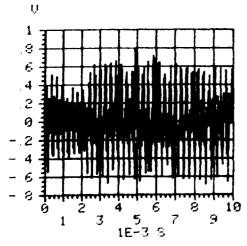
1.28

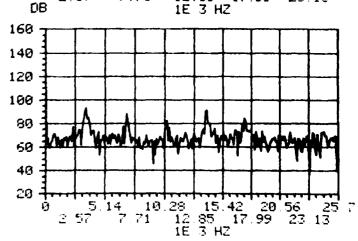
2.57 5.14 8 3.85 6

4 7.71 10 28 12 85 6.42 8.99 11.56 1E 3 HZ

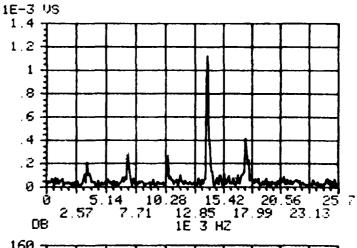
Alarm lest No.	/ <del> -</del>
Alarm Type:	QUALCO
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	75
Pressure	11.75 psig
Flowrate	13.44 std 1/m
Meter Setting	90 dB

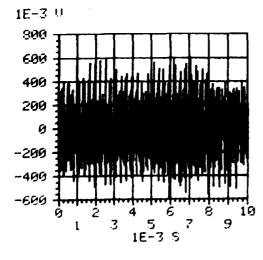


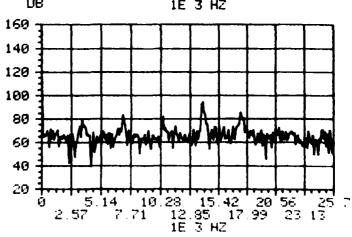




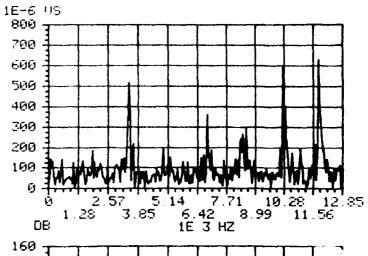
7F Alarm Test No. QUALCO Alarm Type: PRODUCTS CO. Driving Vapor FREON 12 75 Temperature 11.75 Pressure psia 13.44 std 1/m Flowrate 90 Meter Setting

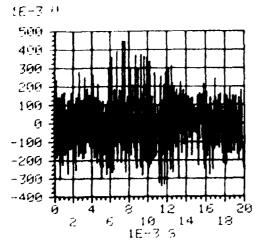


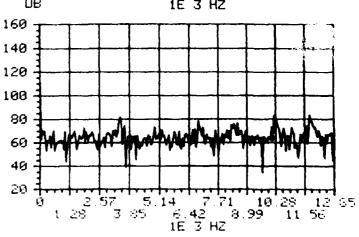




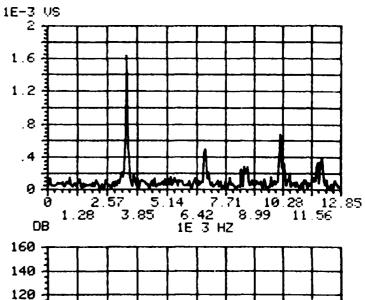
Alarm Test No.	/6
Alarm Type:	QUALCO
PRODUCTS CO.	
Oriving Vapor	FREON 12
Temperature	76 F
Pressure	7.5 psig
Filwrate	10.38 std 1/m
Meter Setting	90 dB

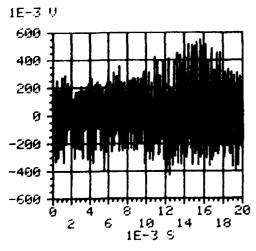


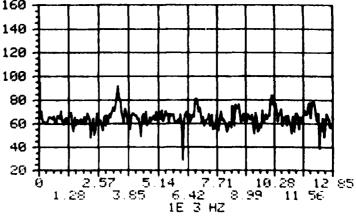




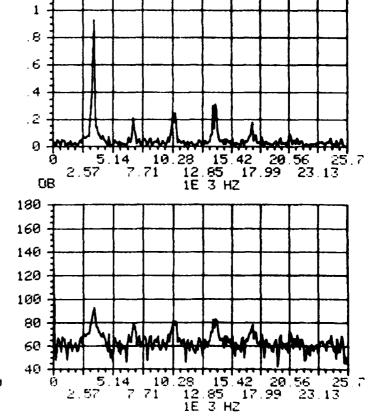
Alarm Test No.	76
Alarm Type:	QUALCO
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	76 °F
Pressure	7.5 psig
Flowrate	10.88 std 1/m
Meter Setting	90 dB

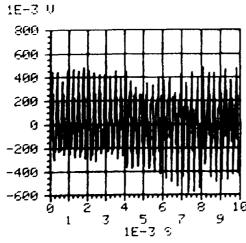






Alarm Test No.	/6
Alarm Type:	QUALCO
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	_76
Pressure	7.5 psig
Flowrate	10.88 std 1/m
Meter Setting	90 dB

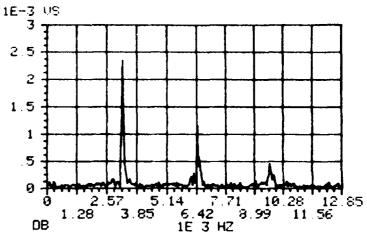


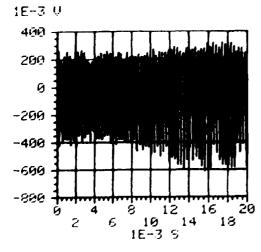


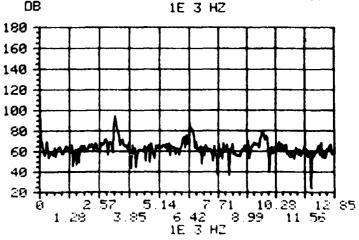
1E-3 US 1.2 T

Alarm Test No. 7G Alarm Type: QUALCO	1E-6 500	us a			r			<del></del>	<del></del>	<del>,</del>	, — - <del>-</del> -	ı
PRODUCTS CO.  Driving Vapor FREON 12	400				ļ		+	+	+	+-		ļ
Temperature 76 °F Pressure 7.5 psig Flowrate 10.88 std 1/m	300						+	+	+	1		
Meter Setting 90 dB	200						$oxed{\mathbb{H}}$	$oxed{\mathbb{F}}$				; }
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1E-3 V	D	ັ 2.	57	7.	71	.28 12 1E	15 35 3	5.42 1	29 7 99	). <b>5</b> 6 23	25 13	.7
16-2 A		0				15	J :	74				
500 3 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	160	<u>.</u>			ı	12	<u> </u>	7 <u>-</u>	Τ_	T		ı
500						16			<del>-</del>	<u> </u>		! 
500 3 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	160 140 120					16						
500 400 300 200	160 140 120 100					16						
500 400 300 200 100	160 140 120 100 80		<u> </u>			16	Λ					
500 400 300 200 100 9	160 140 120 100 30	<b>M</b>	4		<b>M</b> w	W					- Vol-	
500 400 300 200 100 9	160 140 120 100 80 60 40		<b>4</b> ,		<b>//w/</b>	12 Ww	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\		1			
500 400 300 200 100 9 -100 -200	160 140 120 100 30		4	A A	19	28	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	-	26	1.56	25	7

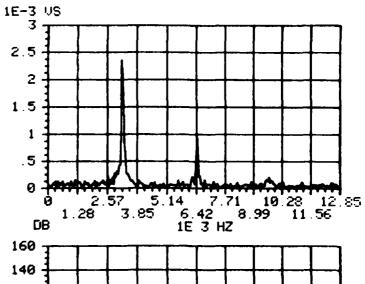
Alarm Test No. Alarm Type: PRODUCTS CO.	QUALCO	
Driving Vapor	FREON 12	
Temperature	76	11
Pressure	3.75	psig
Flowrate	6.4	t/1 1/m
Meter Setting	90	

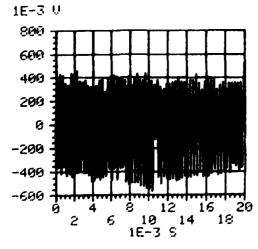


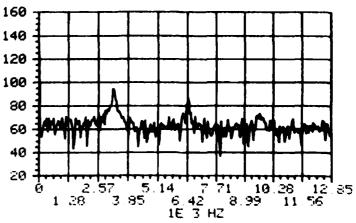




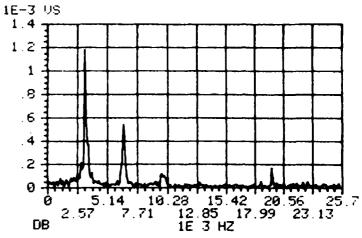
Alarm Test No. Alarm Type: PRODUCTS CO.	QUALCO	)
Driving Vapor	FREON	
Temperature	76	0 F
Pressure	3.75	psig
Flowrate	6.4	std 1/m
Meter Setting	90	dB

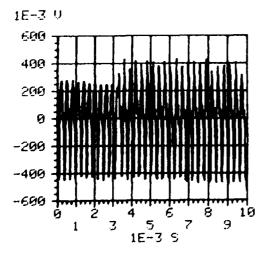


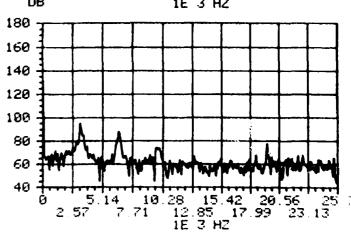




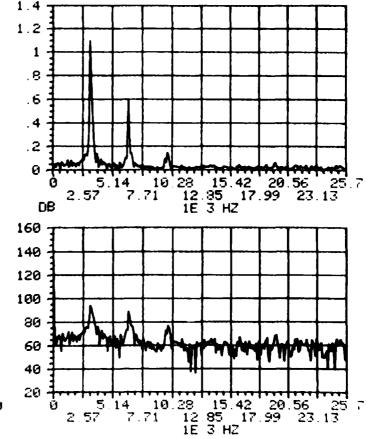
Alarm Test No. Alarm Type: PRODUCTS CO.	QUALCO	)
Driving Vapor Temperature Pressure Flowrate Meter Setting	FREON 76 3.75 6.4 90	12 

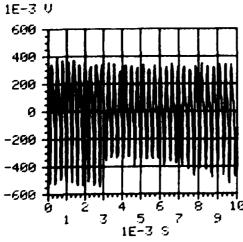




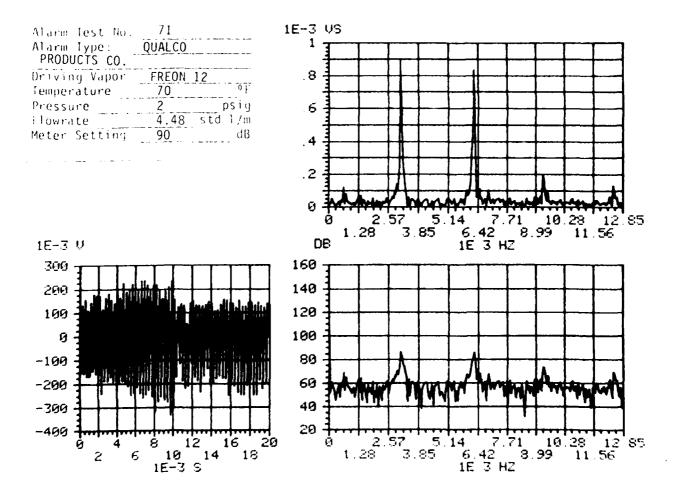


Alarm Test No. Alarm Type: PRODUCTS CO.	7H QUALCO	)
Driving Vapor	FREON	12
Temperature	76	υF
Pressure	3.75	psig
Flowrate	6.4	std 1/m
Meter Setting	90	dB

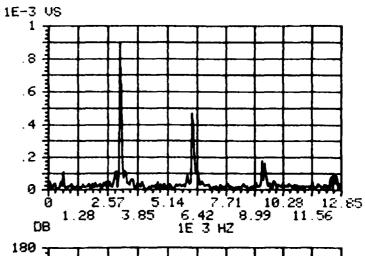


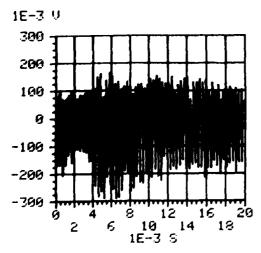


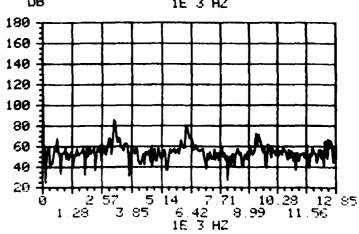
1E-3 US



Alarm Test No.	/1	
Alarm Type:	QUALCO	
PRODUCTS CO.		
Driving Vapor	FREON	12
Temperature	70	9 1
Pressuré	2	psig
Flowrate	4.48	std 1/m
Meter Setting	90	dB

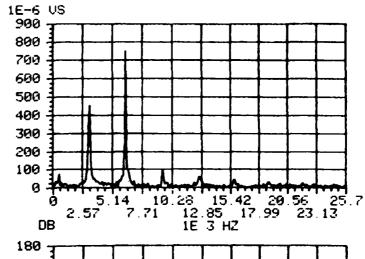


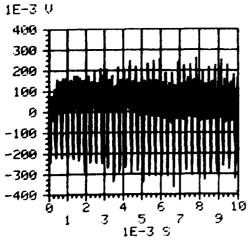


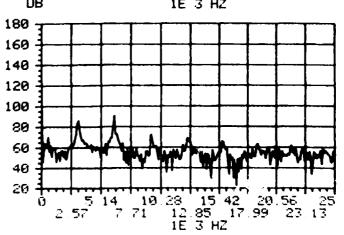


Alarm Test No. 7I  Alarm Type: QUALCO PRODUCTS CO.  Driving Vapor FREON 12  Temperature 70 %F  Pressure 2 psig Flowrate 4.48 std 1/m  Meter Setting 90 dB	1E-6 US 400 350 300 250 200 150
1E-3 U	100 50 0 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 DB 1E 3 HZ
200 150 100 50 -50 -100 -150	180 160 140 120 100 80 60
-260 -250 0 2 4 6 8 10 1 3 5 7 9	40 20 0 5.14 10.28 15.42 20.56 25 7 2.57 7 71 12.85 17.99 23 13 1E 3 HZ

Alarm Test No.	7 I	
Alarm Type:	QUALCO	
PRODUCTS CO.		
Driving Vapor	FREON	12
Temperature	70	o t
Pressure	2	psig
Flowrate	4.48	std l/m
Meter Setting	90	dB

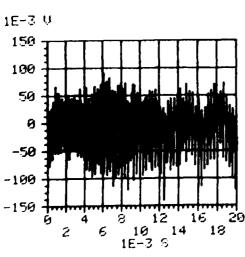


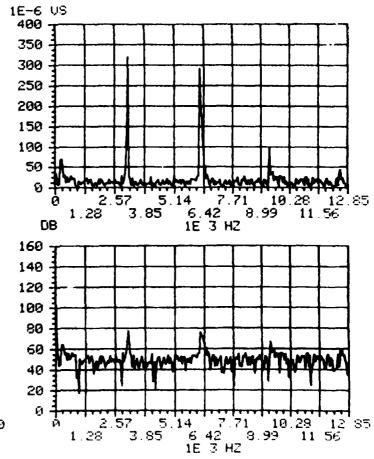




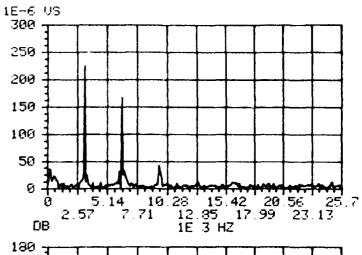
1E-6 US 3**50** \_\_\_ Alarm Test No. 7J Alarm Type: QUALCO PRODUCTS CO. 300 Driving Vapor FREON 12
Temperature 70 °F
Pressure 1 psig
Flowrate 3.20 std 1/m
Meter Setting 90 d8 250 200 150 100 50 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E.3 HZ DB 1E-3 U 160 100 149 50 120 Ø 100 80 -50 69 -169 40 -150 <del>]</del> 20 16 20 14 18 8 12 10 1E-3 S 14 7.7 6.42 1E 3 HZ 1 10.28 12.85 3.99 11.56

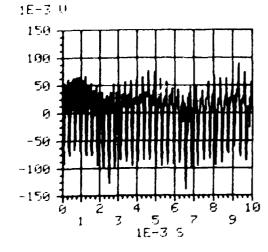
Alarm Test No. Alarm Type: PRODUCTS T	QUALCO 0.
Driving Vapor Temperature	FREON 12
Pressure	j psig
Flowrate	_3_20std 1/m
Meter Setting	90dB

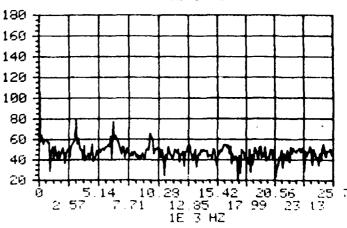




Alarm Lype: PRODUCTS C	
eritng Vapor Te perature	FREON 12
rest are	_1psig
arate	3.20 std 1/m
Meter setting	90 dB







Alarm Test No. 7J

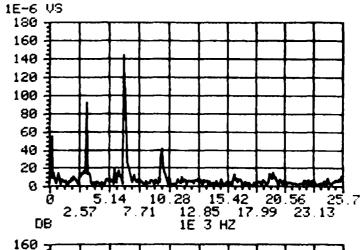
Alarm Type: QUALCO
PRODUCTS CO.

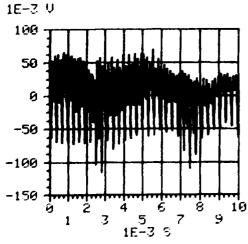
Driving Vapor FREON 12

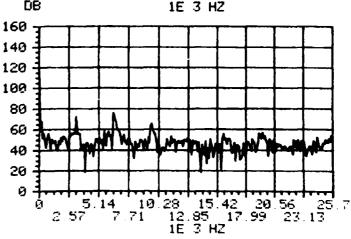
Temperature 70 °F

Pressure 1 psig
Flowrate 3.20 std 1/m

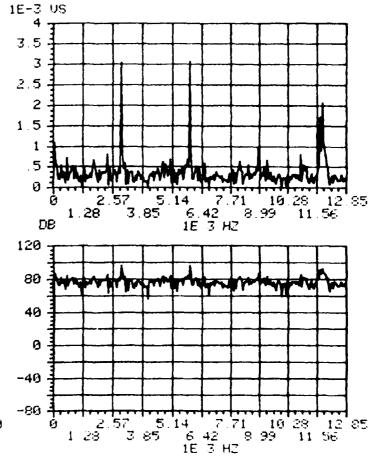
Meter Setting 90 dB

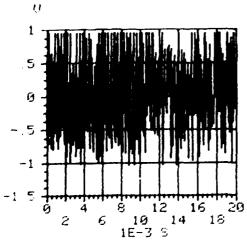






Alarm Test No.	8A	
Aların Type:	PETERZELL CO.	
Driving Vapor	FREON 12	
Temperature	83 F	
Pressure	25.25 psig	
Flowrate	16.64 std 1/m	
Meter Setting	90 dB	
-		



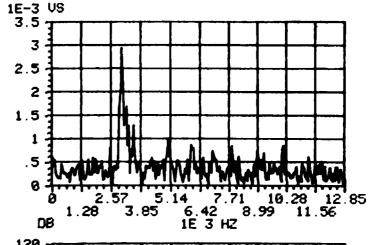


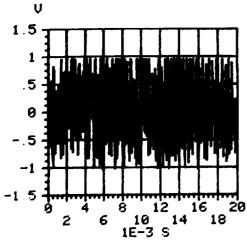
Alarm Test No. 8A
Alarm Type: PETERZELL CO.

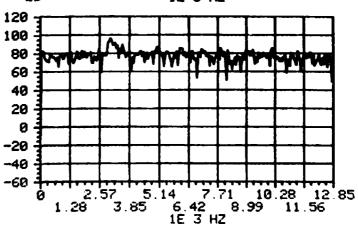
Driving Vapor FREON 12
Temperature 83 °F
Pressure 25.25 psig
Flowrate 16.64 std 1/m

90

Meter Setting

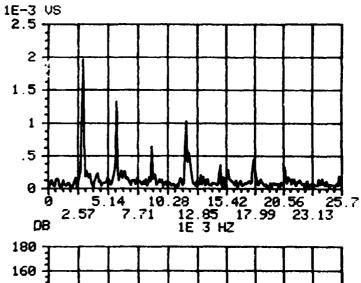


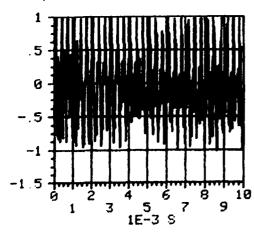


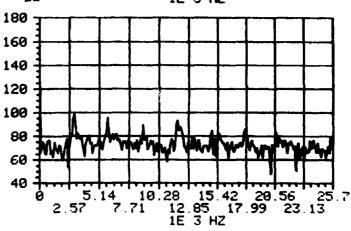


Alarm Test No. 8A
Alarm Type: PETERZELL CO.

Driving Vapor FREON 12
Temperature 83 F
Pressure 25.25 psig
Flowrate 16.64 std 1/m
Meter Setting 90 d8







 Alarm Test No.
 8A

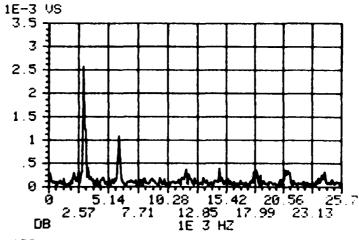
 Alarm Type:
 PETERZELL CO.

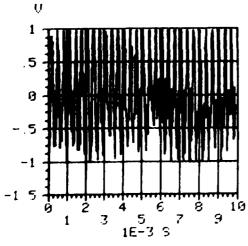
 Driving Vapor Temperature
 FREON 12

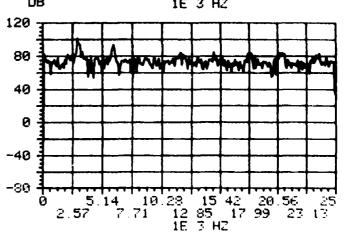
 Pressure
 25.25
 psig

 Flowrate
 16.64
 std 1/m

 Meter Setting
 90
 dB







1E-3 VS Alarm Test No. 8B ខ Alarm Type: PETERZELI 7 CO. Driving Vapor FREON 12 6 Temperature \_ . 79 5 Pressure \_ psig 24 4 Flowrate \_ 15.36\_std 1/m Meter Setting 90 3 2 1 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB Ų 160 2.5 2 140 1.5 129 1 100 . 5 Ø 80 -60 40 2.57 5.14 7.71 10.28 12 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 8 12 10 1E-3 S 16 12.85 18 14

 Alarm Test No.
 8B

 Alarm Type:
 PETERZELL

 CO.
 PETERZELL

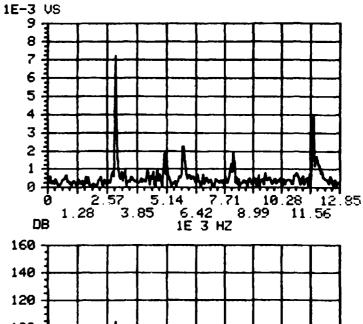
 Driving Vapor
 FREON 12

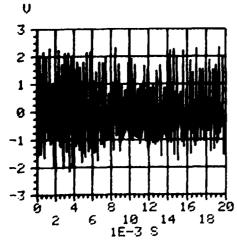
 Temperature
 79
 °F

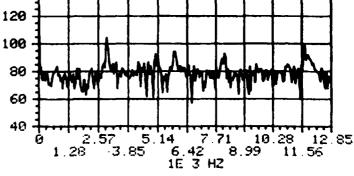
 Pressure
 24
 psig

 Flowrate
 15.36
 std 1/m

 Meter Setting
 90
 dB







1E-3 US Alarm Test No. 8B Alarm Type: PETERZELL CO.
Driving Vapor FREON 12
Temperature 79
Pressure 24 psig
Flowrate 15.36 std 1/m
Meter Setting 90 dB CO. 2 5 2 . 1.5 1 5 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ OB ij 160 3 140 2 120 100 Ø 80 60 40 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 9 5 1E-3 S 3

Alarm Test No. 8B

Alarm Type: PETERZELL

CO.

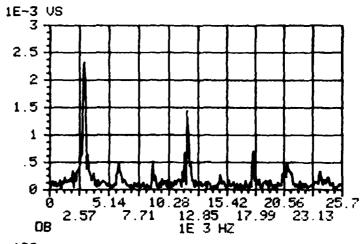
Driving Vapor FREON 12

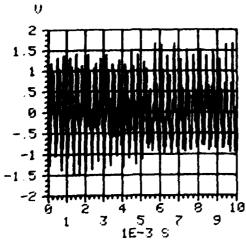
Temperature 79 °F

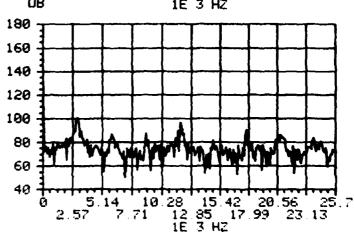
Pressure 24 psig

Flowrate 15.36 std 1/m

Meter Setting 90 dB







1E-3 US 80 Alarm Test No. PETERZELL CO. Alarm Type: 6 FREON 12 Driving Vapor 5 Temperature \_ 24 4 psig Pressure 15.36 std 1/m Flowrate 3 Meter Setting 90 2 1 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 08 ij 2.5 180 2 160 1.5 140 1 120 .5 100 9 80 . - .5 60 -1 40 -1.5 20 -2 2.57 5.14 7.71 10.28 12.85 1 28 3.85 6.42 8.99 11.56 1E 3 HZ 8 12 10 14 1E-3 5 16 2

Alarm Test No.

Alarm Type: PETERZELL CO.

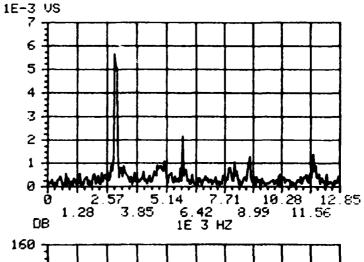
Driving Vapor FREON 12

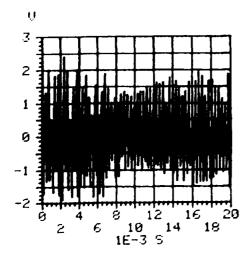
Temperature 79 °F

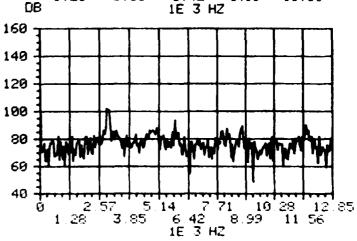
Pressure 24 psig

Flowrate 15.36 std 1/m

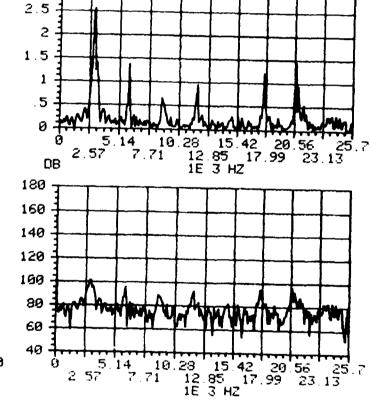
Meter Setting 90 d8

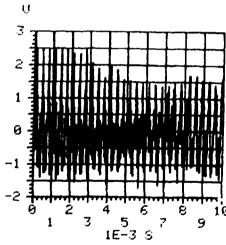






Alarm Test No.	. 8C	
Alarm Type:	PETERZE	LL CO.
Driving Vapor	FREON 1	2
Temperature	79	o F
Pressure	24	psig
Flowrate	15.36	std 1/m
Meter Setting	90	dB

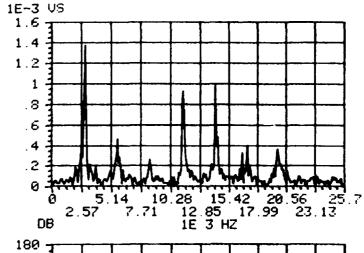


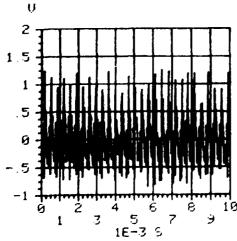


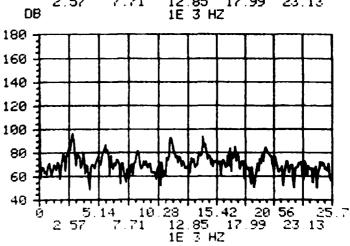
1E-3 US 3.5 7

3

80 Alarm Test No. PETERZELI CO. Alarm Type: FREON 12 Driving Vapor 79 Temperature 24 psig Pressure 15.36 std 1/m Flowrate dB Meter Setting 90



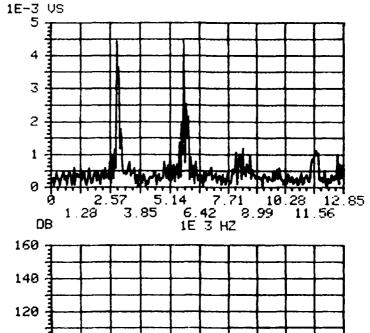


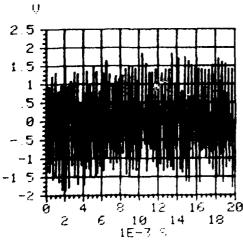


1E-3 US 3.5 4 80 PETERZELL CO. 2.5 79 F 24 FS19 15.36 Std 1/m 30 dB 2 1.5 1 5 -5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 11 180 160 140 120 100 80 -60 40 -5.14 10 28 15.42 20.56 25.7 2 57 7.71 12.85 17.99 23.13 1E 3 HZ 4 *6* 5 7 1E-3 8 9

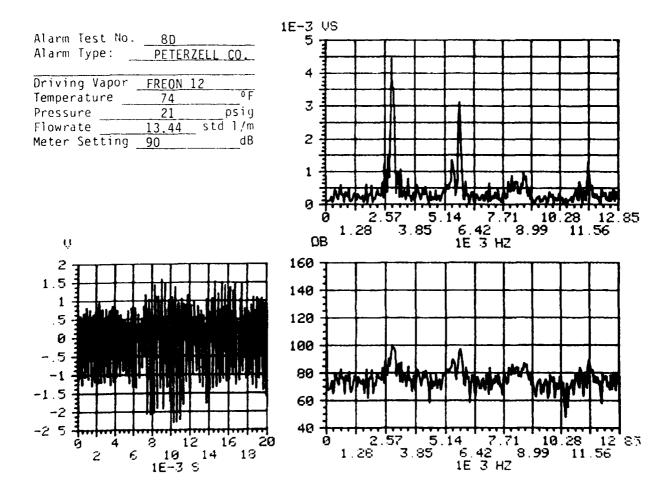
Alarm Test No. 8D
Alarm Type: PETERZELL CO.

Driving Vapor FREON 12
Temperature 74 °F
Pressure 21 psig
Flowrate 13.44 std 1/m
Meter Setting 90 d8





100



1E-3 US Alarm Test No. 8D 4.5 7 Alarm Type: PETERZELL CO. 4 3.5 Driving Vapor FREON 12 Temperature 74 3 -Pressure 2 Flowrate 13. Meter Setting 90 21 psig 2.5 13.44 std 1/m 2 1.5 1 . 5 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB U 2.5 180 160 1.5 140 120 -100 -80 --1 5 60 -2 5  Alarm Test No. <u>8D</u>
Alarm Type: <u>PETERZELL CO.</u> 5 7 Driving Vapor FREON 12 Temperature 74 3 . Pressure \_ 21 psig 13.44 std 1/m Flowrate 2 -Meter Setting 90 1 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB Ų 180 3 160 140 120 100 89 -2 60 40 -3 5.14 2.57 7 10.28 15.42 20.56 25 71 12.85 17.99 23.13 1E 3 HZ

1E-3 VS

3

5 1E-3 S

 Alarm Test No.
 8E

 Alarm Type:
 PETERZELL CO.

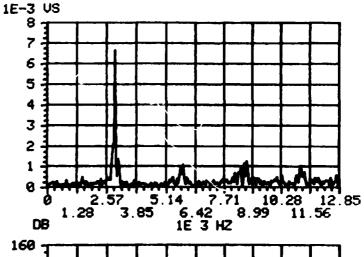
 Driving Vapor
 FREON 12

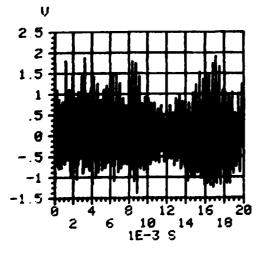
 Temperature
 75
 °F

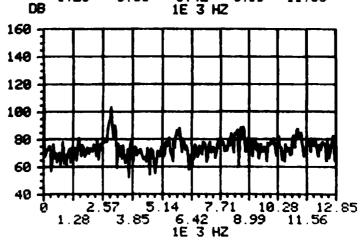
 Pressure
 17
 psig

 Flowrate
 10.88
 std 1/m

 Meter Setting
 90
 dB







Alarm Test No. 8E

Alarm Type: PETERZELL CO.

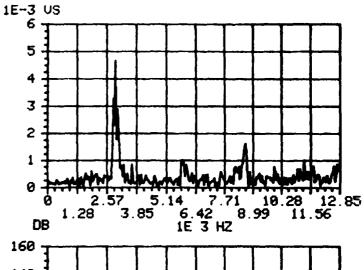
Driving Vapor FREON 12

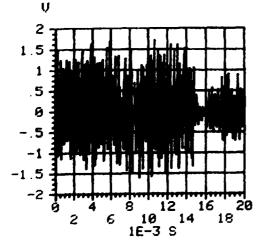
Temperature 75 °F

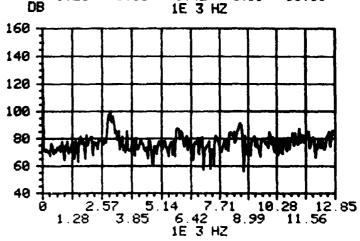
Pressure 17 psig

Flowrate 10.88 std 1/m

Meter Setting 90 dB







Alarm Test No. 8E

Alarm Type: PETERZELL CO.

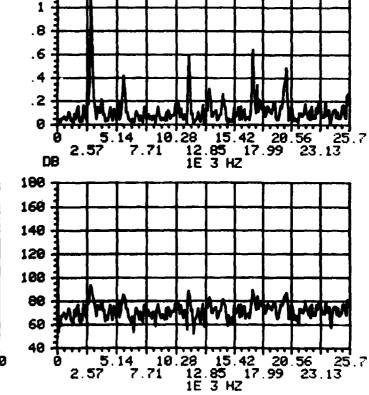
Driving Vapor FREON 12

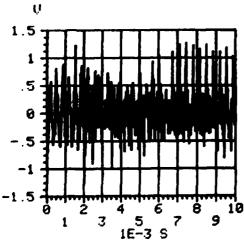
Temperature 75 °F

Pressure 17 psig

Flowrate 10.88 std 1/m

Meter Setting 90 dB





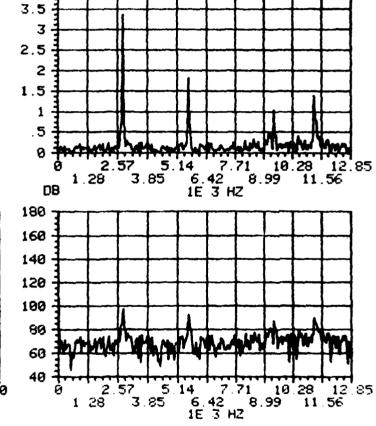
1E-3 VS

1.2

Alarm Test No.  $\frac{8F}{Alarm Type}$ : PETERZELL CO.

Driving Vapor FREON 12

Temperature  $\frac{83}{83}$  of Pressure  $\frac{13}{Flowrate}$   $\frac{95}{8.96}$  std 1/m Meter Setting  $\frac{90}{80}$  dB



1E-3 VS

 Alarm Test No.
 8F

 Alarm Type:
 PETERZELL CO.

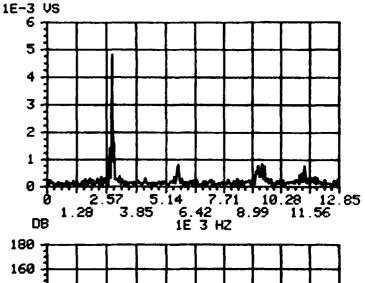
 Driving Vapor
 FREON 12

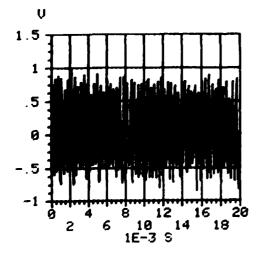
 Temperature
 83
 °F

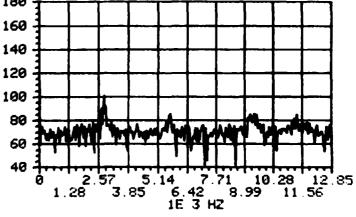
 Pressure
 13
 psig

 Flowrate
 8.96
 std 1/m

 Meter Setting
 90
 dB

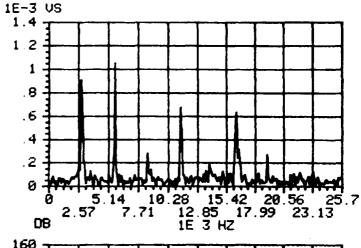


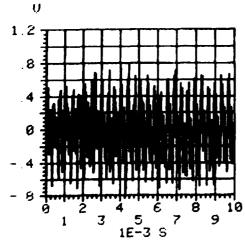


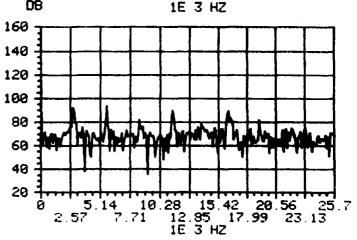


Alarm Test No. 8F
Alarm Type: PETERZELL CO.

Driving Vapor FREON 12
Temperature 83 °F
Pressure 13 psig
Flowrate 8.96 std 1/m
Meter Setting 90 dB

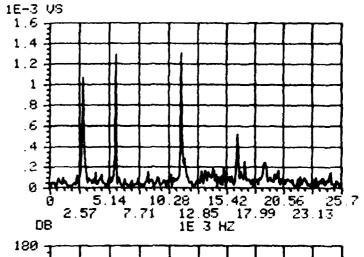


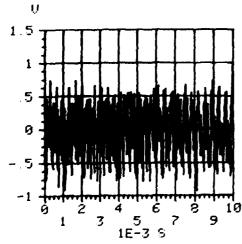


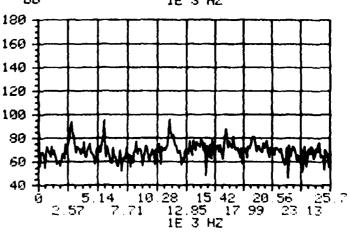


Alarm Test No. 8F
Alarm Type: PETERZELL CO.

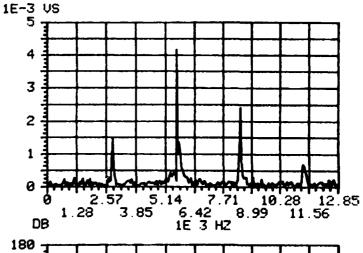
Driving Vapor FREON 12
Temperature 83 °F
Pressure 13 psig
Flowrate 8.96 std 1/m
Meter Setting 90 d8

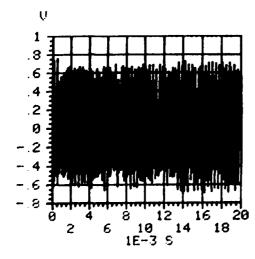


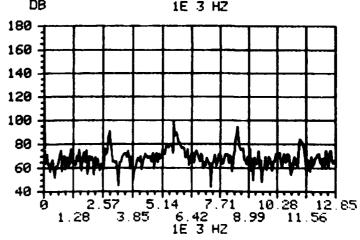




1E-3 US 3.5 T Alarm Test No. 8G Alarm Type: PETERZELL CO. 3 Driving Vapor FREON 12 2.5 ٥F Temperature 81 2 Pressure Flowrate 8,25 psig 5.12 std 1/m 1.5 Meter Setting 90 dB 1 . 5 0 7 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB 1E-3 V 180 800 600 160 400 140 200 120 9 100 -200 80 -400 60 -600 -800 2.57 5.14 7.71 10.28 12.85 1.26 3.85 6.42 8.99 11.56 1E 3 HZ 10 14 16-3 5



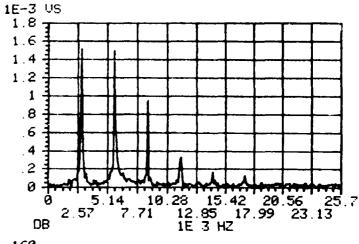


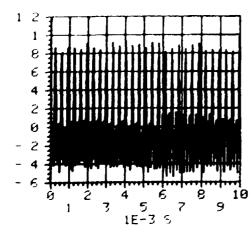


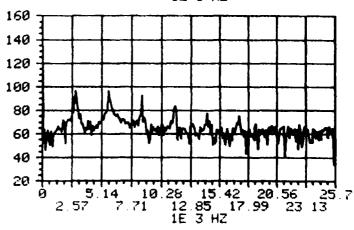
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Attack est test 86 Attack type PRIERZELL CO.

4.3

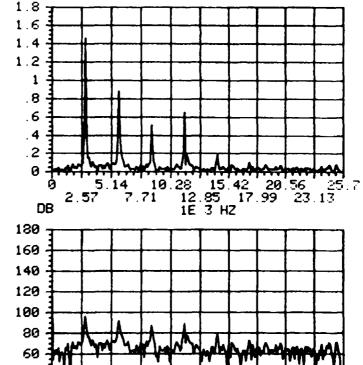






Alarm Test No. 8G
Alarm Type: PETERZELL CO.

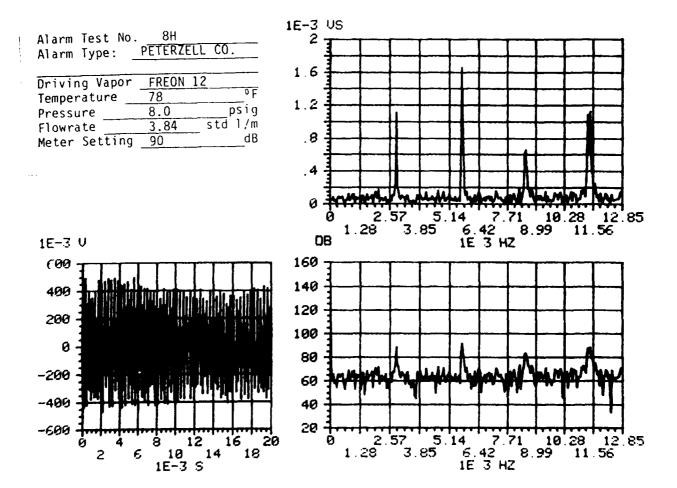
Driving Vapor FREON 12
Temperature 81 °F
Pressure 8.25 psig
Flowrate 5.12 std 1/m
Meter Setting 90 dB



5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E.3 HZ

40 20

1E-3 US



 Alarm Test No.
 8H

 Alarm Type:
 PETERZELL CO.

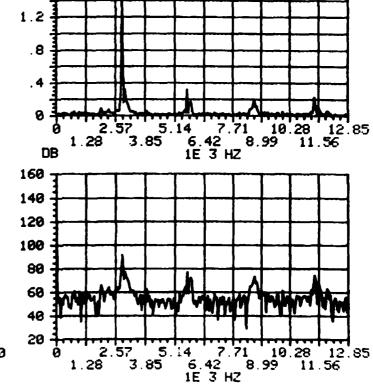
 Driving Vapor
 FREON 12

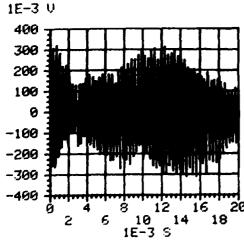
 Temperature
 78
 °F

 Pressure
 8.0
 psig

 Flowrate
 3.84
 std 1/m

 Meter Setting
 90
 dB





1E-3 VS

1.6

8H Alarm Test No. 3.5 Alarm Type: PETERZELL CO. 3 Driving Vapor FREON 12 2.5 78 Temperature 2 8.0 psig Pressure 3.84 std 1/m Flowrate 1.5 Meter Setting 90 dB 1 . 5 0 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ OB Ų 160 1.5 140 120 100 80

> 60 40 20

5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ

0

4 6 5 1E-3 S

3

1

7

9

1E-3 VS

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 Alarm Test No.
 8H

 Alarm Type:
 PETERZELL CO.

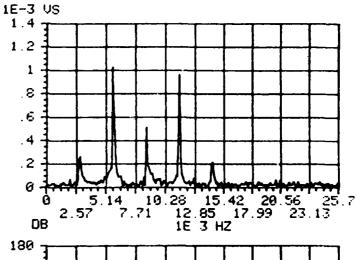
 Driving Vapor
 FREON 12

 Temperature
 78
 °F

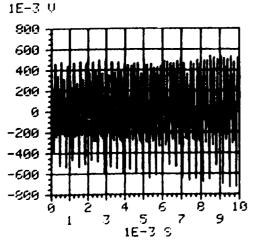
 Pressure
 8.0
 psig

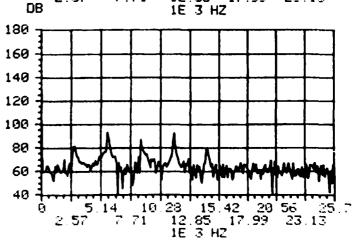
 Flowrate
 3.84
 std 1/m

 Meter Setting
 90
 d8



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Alarm Test No. 9A

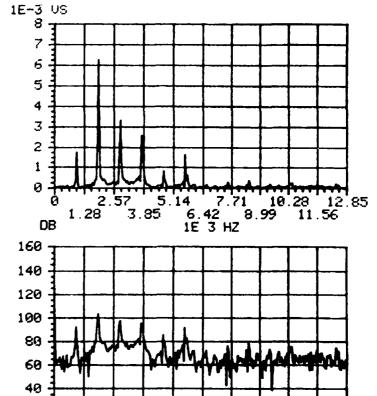
Alarm Type: FALCON SAFETY
PRODUCTS CO.

Driving Vapor FREON 12

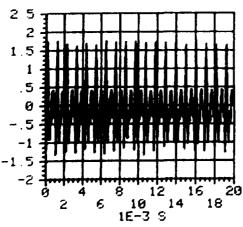
Temperature 70 °F

Pressure 36 psig
Flowrate 9.6 std l/m
Meter Setting 90 dB

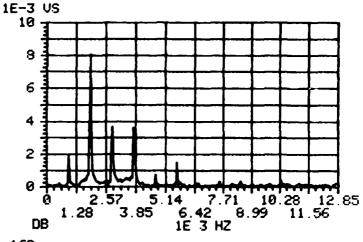
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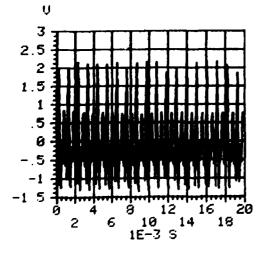


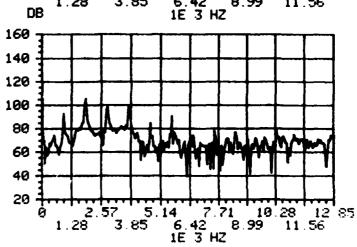
2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ



Alarm Test No. 9A FALCON SAFETY Alarm Type: PRODUCTS CO. FREON 12 Driving Vapor 70 Temperature psig 36 Pressure 9.6 std 1/m Flowrate Meter Setting 90







Alarm Test No. 9A

Alarm Type: FALCON SAFETY

PRODUCTS CO.

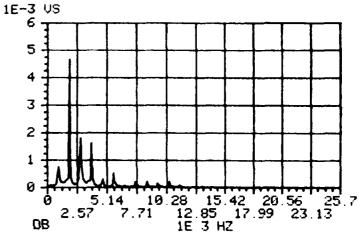
Driving Vapor FREON 12

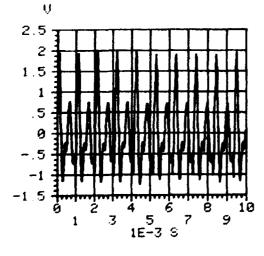
Temperature 70 °F

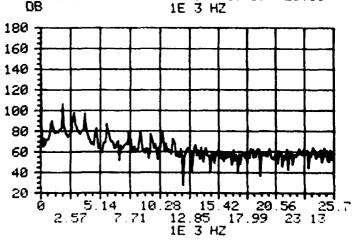
Pressure 36 psig

Flowrate 9.6 std 1/m

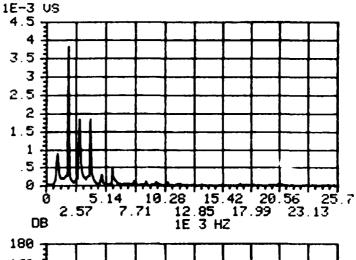
Meter Setting 90 dB

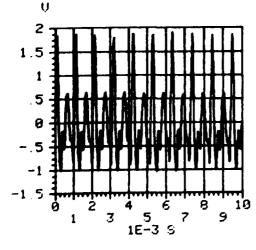


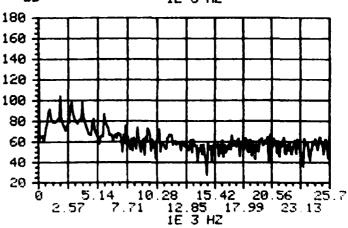




9<u>A</u> Alarm Test No. FALCON SAFETY Alarm Type: PRODUCTS CO FREON 12 Driving Vapor 70 Temperature psig 36 Pressure 9.6 std 1/m Flowrate 90 Meter Setting \_



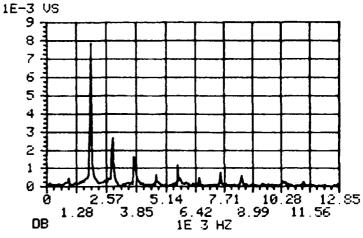


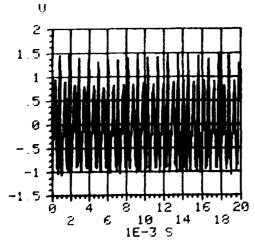


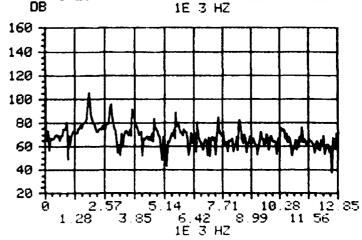
Alarm Test No. 9B

Alarm Type: FALCON SAFETY
PRODUCTS CO.

Driving Vapor FREON 12
Temperature 69 °F
Pressure 32 psig
Flowrate 8.32 std 1/m
Meter Setting 90 dB





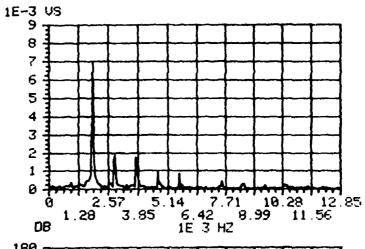


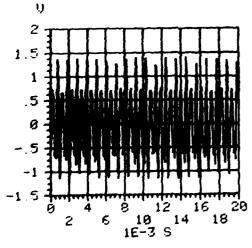
Alarm Test No. 9B

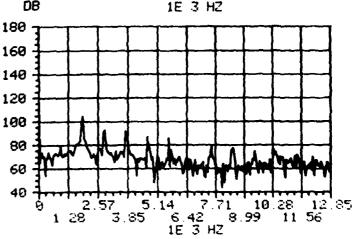
Alarm Type: FALCON SAFETY
PRODUCTS CO.

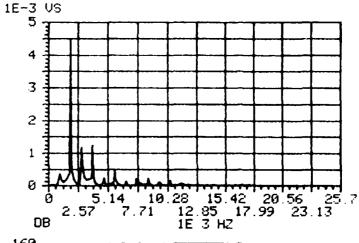
Driving Vapor FREON 12

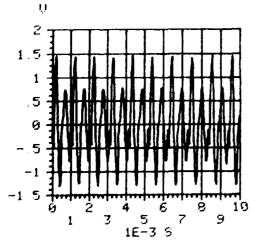
Temperature 69 °F
Pressure 32 psig
Flowrate 8.32 std 1/m
Meter Setting 90 dB

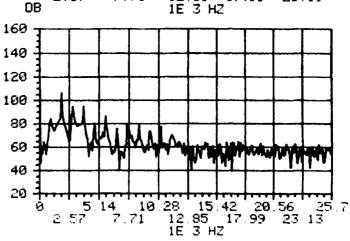




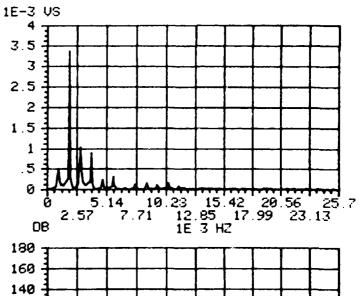


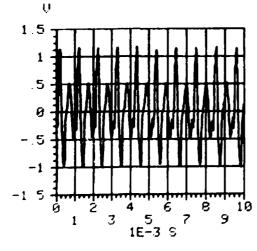


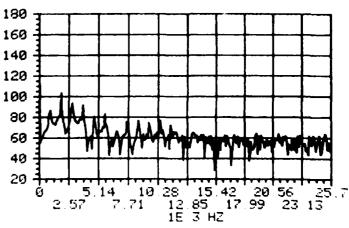


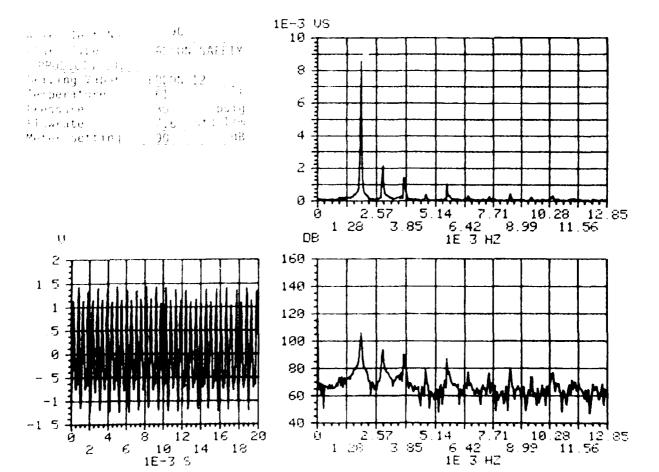


Alarm Test No.	9B	
Alarm Type:	FAI	CON SAFETY
PRODUCTS CO.		
Driving Vapor	FREON	12
Temperature	69	٥F
Pressure	32	psig
Flowrate	8.32	std 1/m
Meter Setting	90	dB







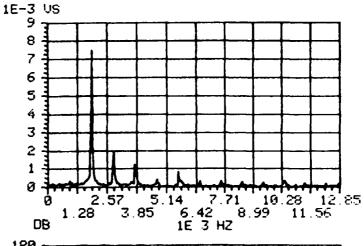


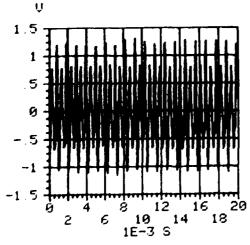
Alarm Test No. 9C

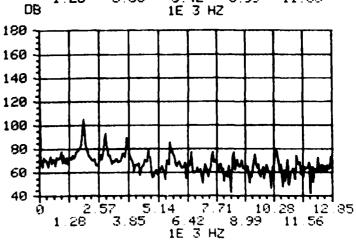
Alarm Type: FALCON SAFETY
PRODUCTS CO.

Driving Vapor FREON 12

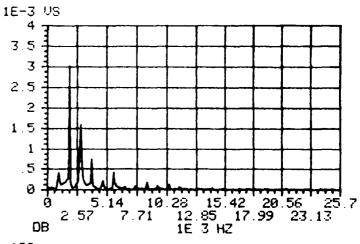
Temperature 61 F
Pressure 30 psig
Flowrate 7.6 std 1/m
Meter Setting 90 dB

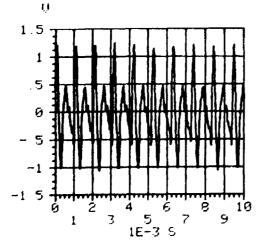


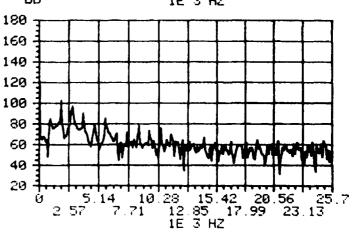




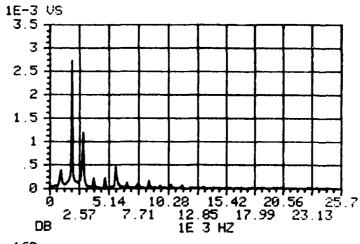
Alarm Test No.	9t
Alarm Type:	FALCON SAFETY
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature	61r
Pressure	30 psig
Flowrate	7.6 std 1/m
Meter Setting	90 dB

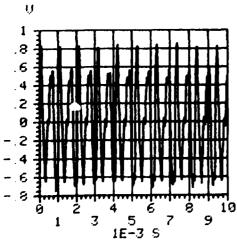


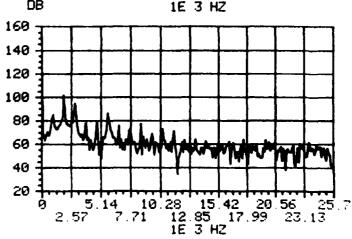


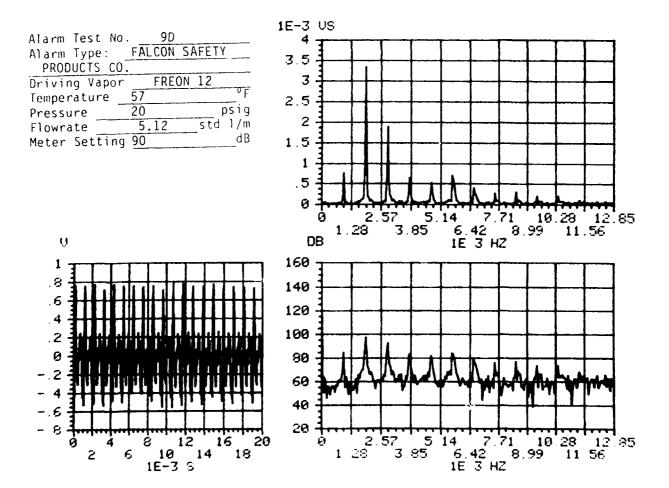


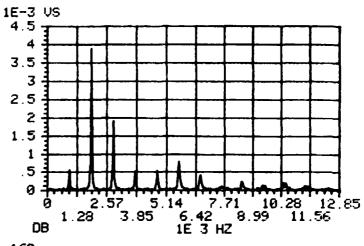
Alarm Test No.	90
Alarm Type:	FALCON SAFETY
PRODUCTS CO.	
Driving Vapor _	FREON 12
Temperature	61 °F
Pressure	psig
Flowrate	7.6 std 1/m
Meter Setting _	90dB

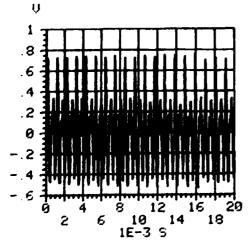


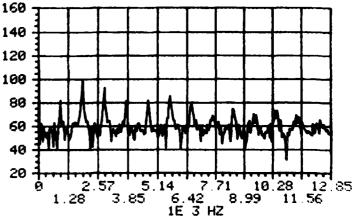


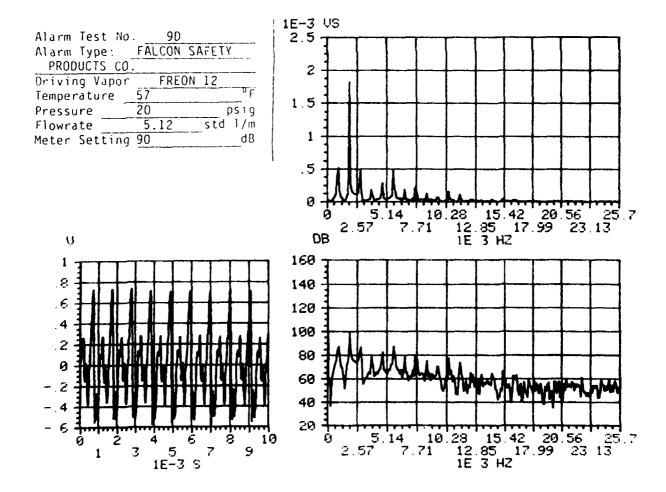












 Alarm Test No.
 9D

 Alarm Type:
 FALCON SAFETY

 PRODUCTS CO.

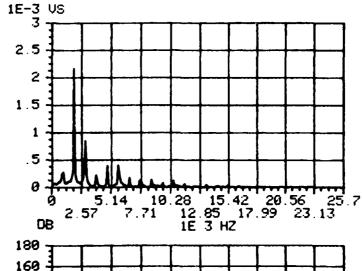
 Driving Vapor
 FREON 12

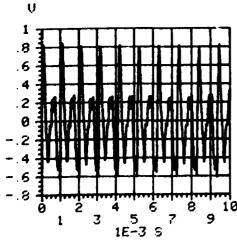
 Temperature
 57
 F

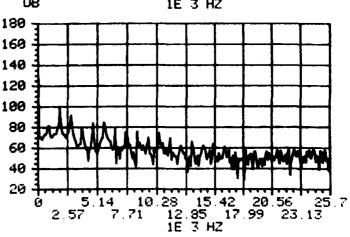
 Pressure
 20
 psig

 Flowrate
 5.12
 std 1/m

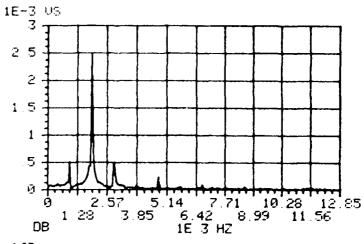
 Meter Setting
 90
 d8

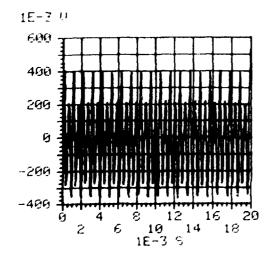


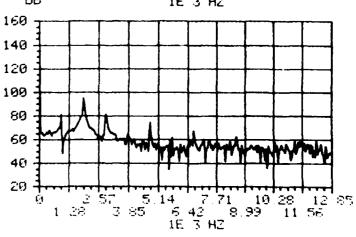




Alarm Test No.	9E	
Alarm Type: F	ALCON SA	VEETY
PRODUCTS CO.		
Driving Vapor	FREON_1	. 2
Temperature	80	۴
Pressure	5 - 7_	psig
Flowrate	3.2	_std 1/m
Meter Setting	90	dB

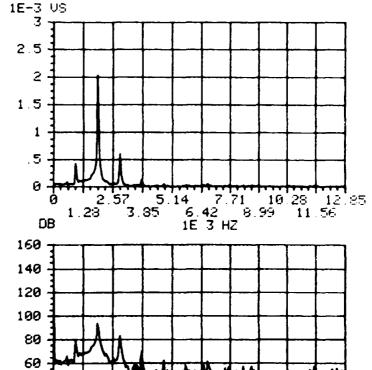




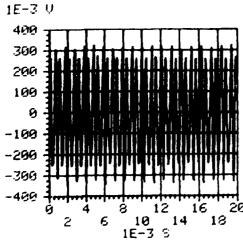


Alarm Test No. 9EAlarm Type: FALCON SAFETY
PRODUCTS CO.

Driving Vapor FREON 12
Temperature 80 °F
Pressure 5-7 psig
Flowrate 3.2 std 1/m
Meter Setting 90 dB



5.14 7 71 10.28 12 5 6.42 8 99 11 56 1E 3 HZ



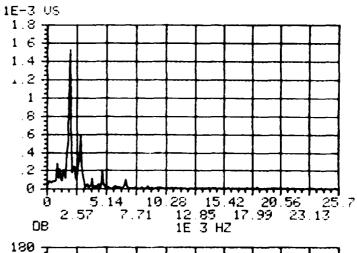
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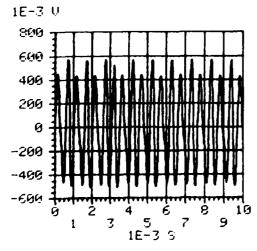
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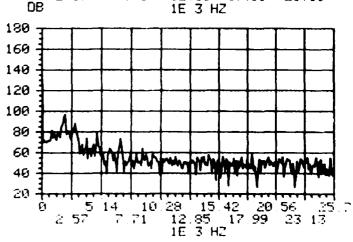
2.57 5 1.28 3.85

1E-3 US Alarm Test No. 9E 1.4 Alarm Type: FALCON SAFETY 1.2 PRODUCTS CO. Driving Vapor FREON 12 1 80 Temperature 5 - 7 3.2 psig Pressure \_ 8 std 1/m Flowrate 6 Meter Setting 90 2 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ ġ DB 1E-3 U 189 500 466 169 300 140 200 129 100 100 9 80 -10069 -200 49 -399 20 -466 5.14 10.28 15.42 20.56 25 2.57 7 71 12.85 1**7 99** 23 13 16 3 HZ 7 5 1E-3 5 3

Alarm Test No	. 9E	
Alarm Type:	FALCON S	SAFETY
PRODUCTS CO.		
Driving Vapor	FREON	12
Temperature	80	o F
Pressure	5 - 7	psig
Flowrate	3.2	std 1/m
Meter Setting	90	dB







1E-3 US Alarm Test No. 10A 10 7 Alarm Type: FALCON SAFETY PRODUCTS CO. Driving Vapor FREON 12 Temperature 77 6 Pressure 25 psig Flowrate 6.4 std 1/m Meter Setting 90 2 0 2.57 5.14 7.71 10 1.28 3.85 6.42 8.99 1E 3 HZ 10.28 12.85 99 11.56 08 Û 160 15-140 1 120 100 -80 60 40 20 -1.5 2.57 5.14 7.71 10.28 12 8 3.85 6.42 8.99 11.56 1E 3 HZ 8 12 10 14 1E-3 5 12.85 1.28

Alarm Test No. 10A

Alarm Type: FALCON

SAFETY PRODUCTS CO.

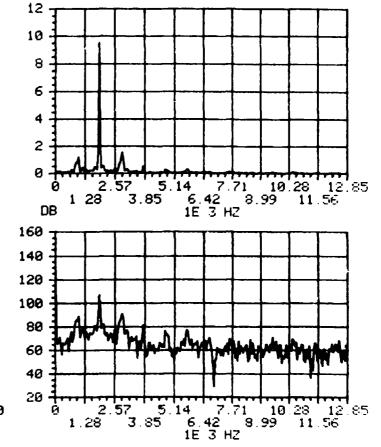
Driving Vapor FREON 12

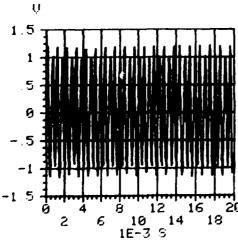
Temperature 77 °F

Pressure 25 psig

Flowrate 6.4 std 1/m

Meter Setting 90 dB





1E-3 US

SELECTIVE AUTOMATIC FIRE EXTINGUISHER FOR CLASS A WITH NOTIFICATION (SAFE.. (U) NEM MEXICO ENGINEERING RESEARCH INST ALBUQUERQUE C W MILSON ET AL. MAY 83 NMERI-TA3-1-VOL-2 AFESC/ESL-TR-83-87-VOL-2 F/G 13/12 AD-A130 331 41 41 UNCLASSIFIED NL

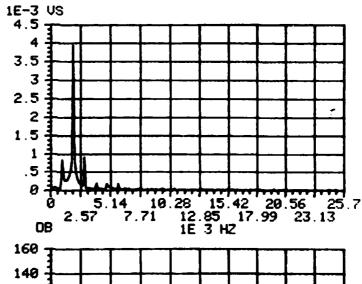


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

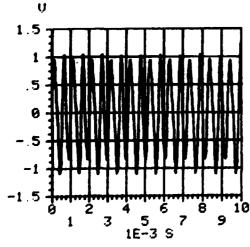
1E-3 US Alarm Test No. 10A Alarm Type: FALCON 5 SAFETY PRODUCTS CO.
Driving Vapor FREO FREON 12 77 Temperature psig Pressure 25 3. std 1/m Flowrate 6.4 Meter Setting 90 2 1 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ OB ij 160 2 140 120 100 80 60 40 20 -1.5 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ

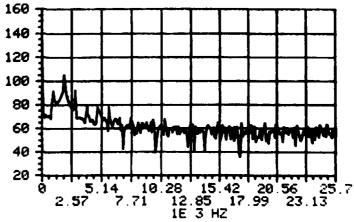
5 1E-3 S

Alarm Test No. 10A Alarm Type: FALCON SAFETY PRODUCTS CO Driving Vapor FREON 12 Temperature psig Pressure std 1/m Flowrate 6.4 dB Meter Setting 90



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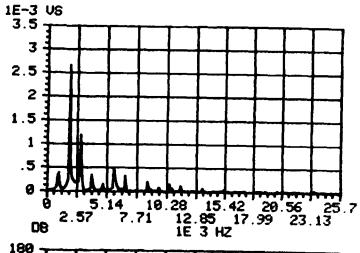
1E-3 VS Alarm Test No. 10B FALCON Alarm Type: 6 SAFETY PRODUCTS CO. Driving Vapor FREON 12 5 77 Temperature 20 psig 4 Pressure 5.76 std 1/m Flowrate 3 Meter Setting \_90 2 1 0 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 08 Ų 180 1.5 160 140 120 100 80 60 40 -1.5 4 7.71 10.28 12.85 6.42 8.99 11.56 1E 3 HZ 8 12 10 14 1E-3 S 16

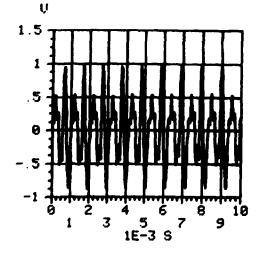
*hadd dall* Doggedol in toddoggin nagarachan haddaga in de gegedolgegoeses en de gegeneer na zar rach e each

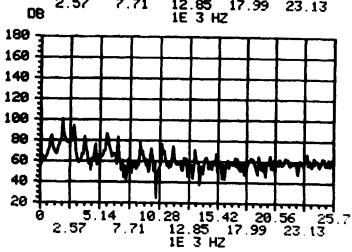
1E-3 VS Alarm Test No. 10B 6 Alarm Type: FALCON SAFETY PRODUCTS CO. 5 Driving Vapor FREON 12 Temperature Pressure 20 psig 3 5.76 Flowrate std 1/m Meter Setting 90 2 1 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB Ų 180 160 140 0 120 100 80 -1 60 -1.5 40 8 12 16 20 10 14 18 1E-3 S 2.57 5.14 7.71 10.28 1.28 3.85 6.42 8.99 11 1E 3 HZ .28 12 85 11 56 ġ 2

1E-3 US Alarm Test No. 108 3 FALCON Alarm Type: SAFETY PRODUCTS CO. 2.5 Driving Vapor FREON 12 77 Temperature \_ 2 psig Pressure 20 1.5 Flowrate 5.76 std 1/m Meter Setting 90 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 08 U 160 .8 140 .6 120 100 0 80 60 40 -.6 20 -.8 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 5 1E-3 S

Alarm Test No. 10B Alarm Type: FALCON SAFETY PRODUCTS CO. Driving Vapor FREON 12 Temperature 0 F 77 Pressure 20 psig Flowrate 5.76 std 1/m Meter Setting 90







1E-3 US Alarm Test No. 8 10C Alarm Type: FALCON SAFETY PRODUCTS CO. Driving Vapor FREON 12 6 Temperature \_\_\_ 76 5 Pressure \_\_\_ 15 psig 4 Flowrate 5.76 std 1/m Meter Setting 3 90 2 . 1 2.57 5.14 1.28 3.85 6 4 7.71 16 6.42 8.99 1E 3 HZ 10.28 12.85 99 11.56 08 IJ 160 1.5 140 1 120 100 80 Ø 60 40 20 -2.57 5.14 7.71 10 1.28 3.85 6.42 8.99 1E 3 HZ 8 12 10 14 1E-3 5 10.28 12.85 99 11.56 16 18

 Alarm Test No.
 10C

 Alarm Type:
 FALCON

 SAFETY PRODUCTS CO.

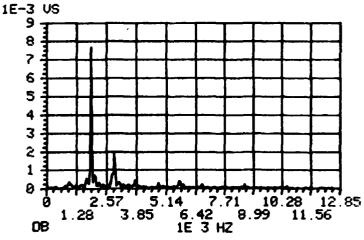
 Driving Vapor
 FREON 12

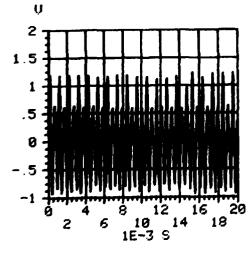
 Temperature
 76
 °F

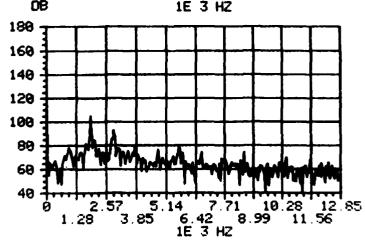
 Pressure
 15
 psig

 Flowrate
 5.76
 std 1/m

 Meter Setting
 90
 dB

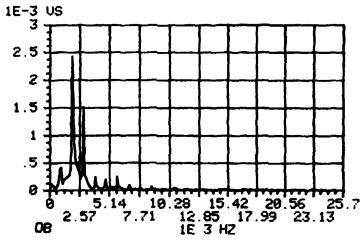




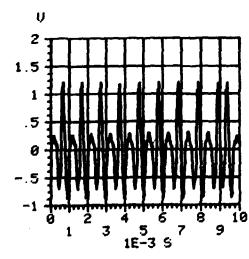


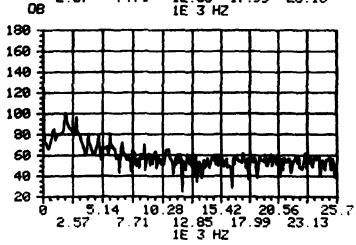
1E-3 VS Alarm Test No. 100 Alarm Type: **FALCON** SAFETY PRODUCTS CO. 2.5 Driving Vapor FREON 12 Temperature 76 2 . Pressure \_ 15 1.5 5.76 std 1/m Flowrate 90 Meter Setting 1 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB Ų 180 2 160 1.5 140 1 120 100 80 Ø 60 40 20 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 5 1E-3 S

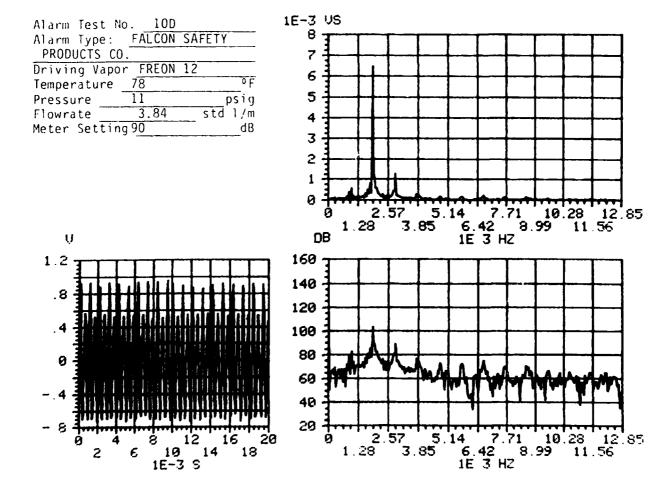
Alarm Test No. 10C **FALCON** Alarm Type: SAFETY PRODUCTS CO. Driving Vapor FREON 12 ٥F Temperature 76 psig Pressure Flowrate 5.76 std 1/m Meter Setting 90 dB



The season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of the season of th





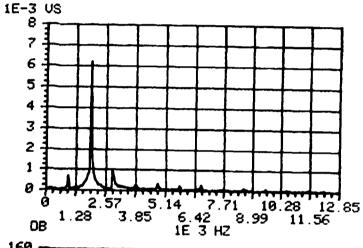


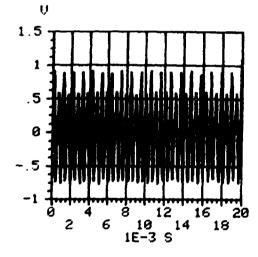
Alarm Test No. 10D

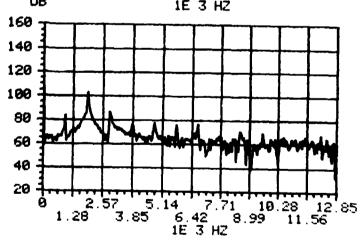
Alarm Type: FALCON SAFETY
PRODUCTS CO.

Driving Vapor FREON 12

Temperature  $\frac{78}{11}$  of
Pressure  $\frac{11}{11}$  psig
Flowrate  $\frac{3.84}{100}$  std 1/m
Meter Setting 90 dB







Alarm Test No. 10D

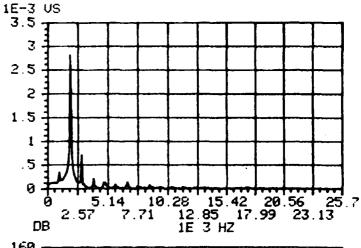
Alarm Type: FALCON SAFETY
PRODUCTS CO.

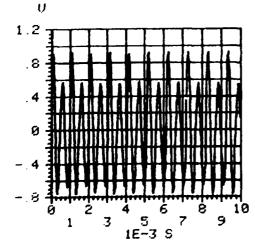
Driving Vapor FREON 12

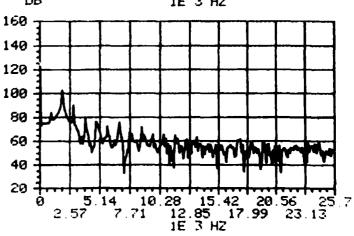
Temperature 78 °F

Pressure 11 psig
Flowrate 3.84 std 1/m

Meter Setting 90 dB



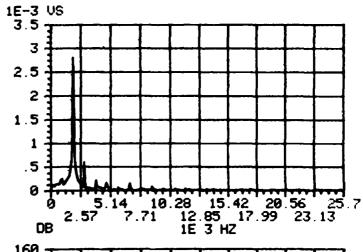


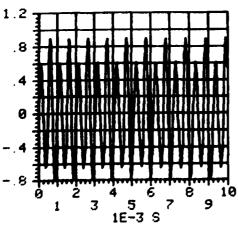


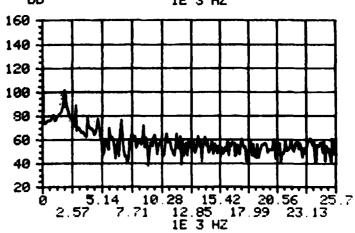
Alarm Test No. 10DAlarm Type: FALCON SAFETY
PRODUCTS CO.

Driving Vapor FREON 12
Temperature 78 °F
Pressure 11 psig
Flowrate 3.84 std 1/m
Meter Setting 90 dB

U



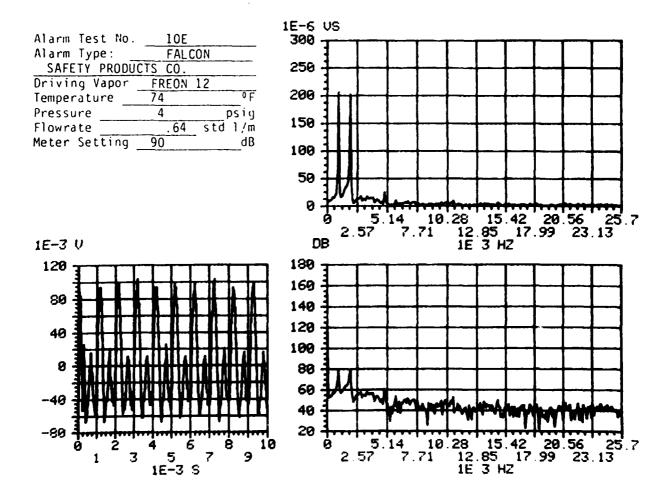




1E-6 US Alarm Test No. 10E Alarm Type: FALCON 700 SAFETY PRODUCTS CO. €00 Oriving Vapor FREON 12 Temperature 74 500 Pressure psig 400 Flowrate .64 std 1/m Meter Setting \_ 90 300 200 100 2.57 5.14 7.71 10.28 12.85 3 3.85 6.42 8.99 11.56 1E 3 HZ 08 1E-3 U 180 200 160 156 140 198 120 56 100 0 80 -50 60 -199 40 -150 20 -200 .14 7.71 10.28 12.85 6.42 8.99 11.56 1E 3 HZ 2.57 S 1.28 3.85 10 1E-3 S 2 14

1E-6 US Alarm Test No. 10E Alarm Type: FALCON 600 SAFETY PRODUCTS CO. Driving Vapor FREON 12 500 74 Temperature \_ .64 std 1/m 400 Pressure Flowrate 300 Meter Setting 90 200 100 0 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB 1E-3 V 160 100 140 60 120 100 20 80 -20 60 40 20 0 -199 18 20 s 12 16 10 14 1E-3 5 2.57 5.14 7.71 10.28 12.65 1.28 3.85 6.42 8.99 11.56 1E 3 HZ

2



 Alarm Test No.
 10E

 Alarm Type:
 FALCON

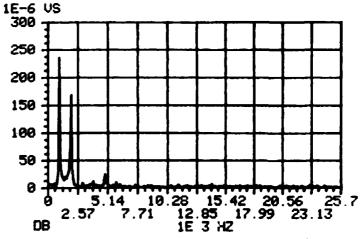
 SAFETY PRODUCTS CO.
 Driving Vapor

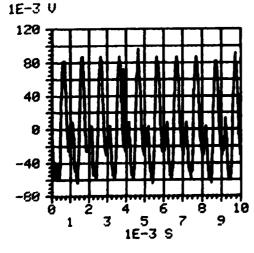
 Temperature
 74
 °F

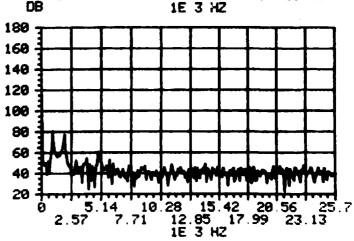
 Pressure
 4
 psig

 Flowrate
 .64
 std l/m

 Meter Setting
 90
 dB







Alarm Test No. 11A Alarm Type: QUALCO PRODUCTS CO Driving Vapor FREON 12 75 Temperature Pressure 17 psig 16.00 Flowrate std 1/m Meter Setting 90 ₫₿

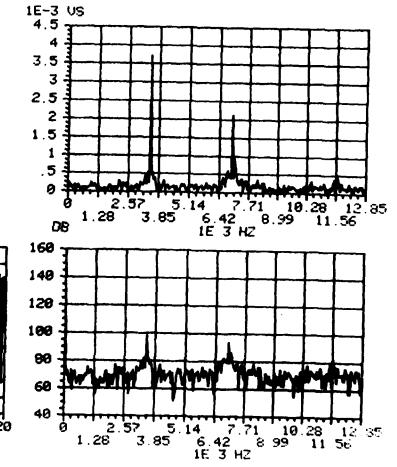
> 8 12 16 10 14 18 1E-3 S

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2



Alarm Test No. 11A QUALCO Alarm Type: 3.5 PRODUCTS CO 3 Driving Vapor FREON 12 Temperature 2.5 17 psig Pressure 2 16.00 std 1/m Flowrate Meter Setting 90 1.5 1 .5 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 08 Ų 160 140 120 100 80 -.2 60 40 20 2.57 5.14 7.71 10.23 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ

1E-3 VS

Production of the service of software of the service 10 14 1E-3 S

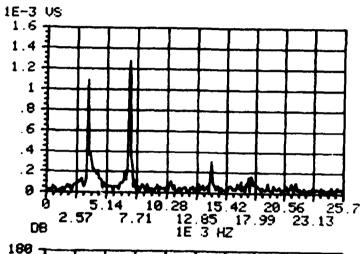
18

2

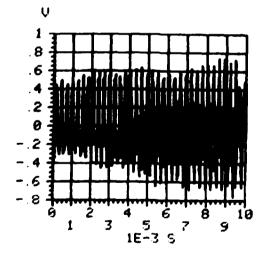
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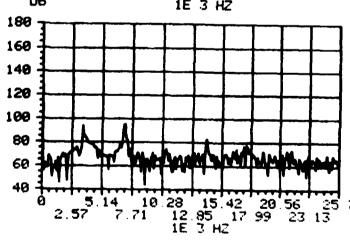
1E-3 US Alarm Test No. 11A 3 Alarm Type: QUALCO PRODUCTS CO. 2.5 FREON 12 Driving Vapor 2 -Temperature psig 17 Pressure 1.5 std 1/m 16.00 Flowrate Meter Setting 90 dB 1 . 5 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 90 Ų 180 1.5 160 140 120 100 80 60 40 5.14 10.28 15.42 20.56 25 2.57 7.71 12.85 17.99 23 13 1E 3 HZ 7 5 1E-3 9

Alarm Test No. 11A Alarm Type: QUALCO PRODUCTS CO FREON 12 Driving Vapor 75 Temperature psig Pressure 17 std 1/m 16.00 Flowrate Meter Setting 90

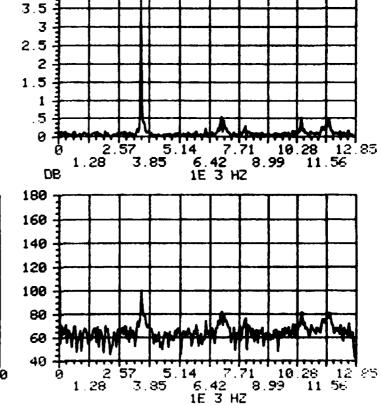


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Alarm Test No. 11B Alarm Type: QUALCO PRODUCTS CO. Driving Vapor FREON 12 70 Temperature 16 psig Pressure 15.36 std 1/m Flowrate Meter Setting 90



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1.28

1E-3 US

4.5

 Alarm Test No.
 11B

 Alarm Type:
 QUALCO

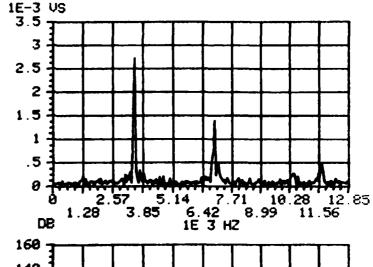
 PRODUCTS CO.
 PREON 12

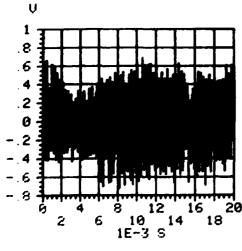
 Temperature
 70
 °F

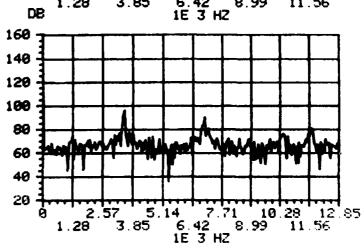
 Pressure
 16
 psig

 Flowrate
 15.36
 std 1/m

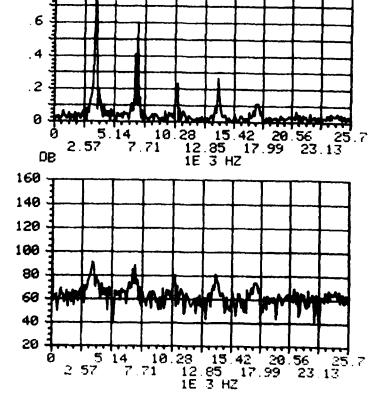
 Meter Setting
 90
 dB

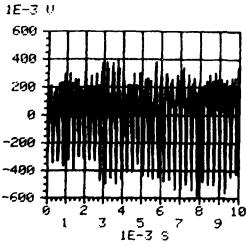






Alarm Test No.	118	
Alarm Type: _	QUALCO	
PRODUCTS CO.		
Driving Vapor	FREON 12	
Temperature	70	₹ F
Pressure	16 ps	sig
Flowrate	15.36 std 1	/m
Meter Setting	90	dB





1E-3 US

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 Alarm Test No.
 11B

 Alarm Type:
 QUALCO

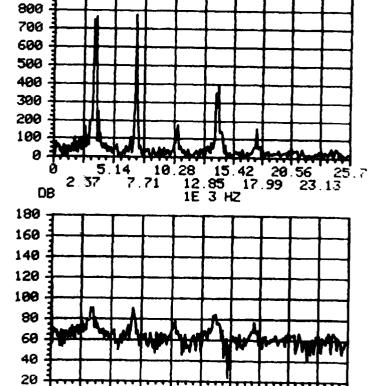
 PRODUCTS CO.
 PREON 12

 Temperature
 70
 °F

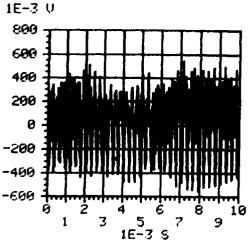
 Pressure
 16
 psig

 Flowrate
 15.36
 std 1/m

 Meter Setting
 90
 d8



5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ

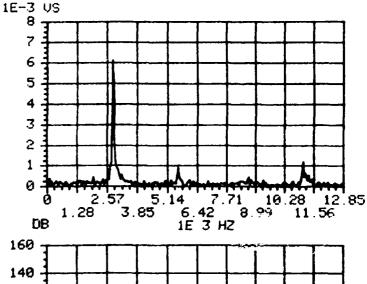


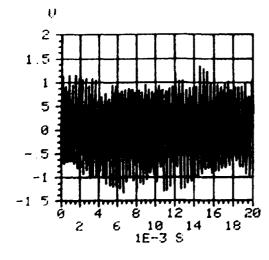
1E-6 US

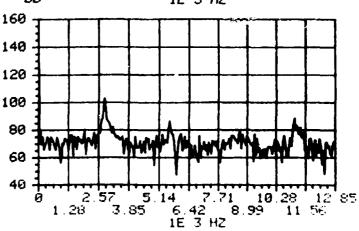
900

Alarm Test No. 11C
Alarm Type: PETERZELL CO.

Driving Vapor FREON 12
Temperature 72 °F
Pressure 17 psig
Flowrate 10.24 std 1/m
Meter Setting 90 dB

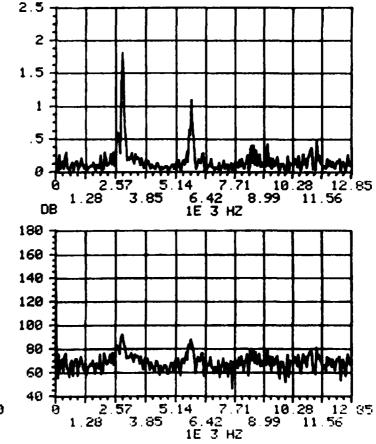






Alarm Test No. 11C
Alarm Type: PETERZELL CO.

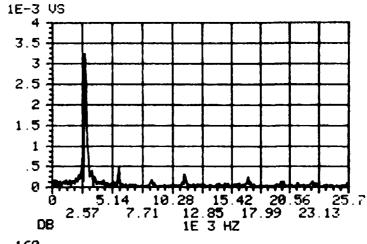
Driving Vapor FREON 12
Temperature 72 °F
Pressure 17 psig
Flowrate 10.24 std 1/m
Meter Setting 90 dB

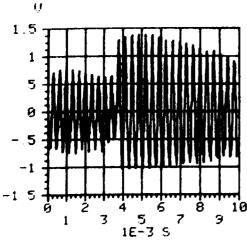


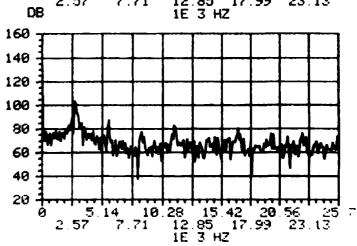
1E-3 VS

Alarm Test No. 11C
Alarm Type: PETERZELL CO.

Driving Vapor FREON 12
Temperature 72 °F
Pressure 17 psig
Flowrate 10.24 std 1/m
Meter Setting 90 dB

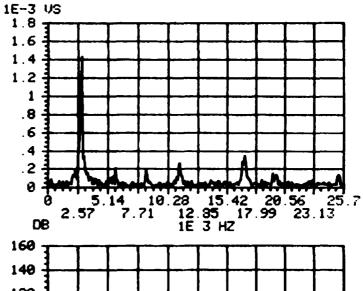


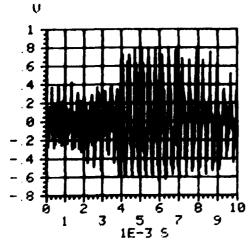


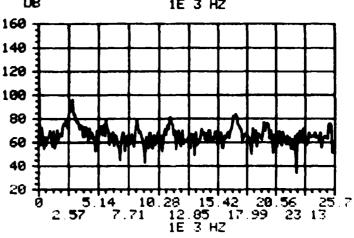


Alarm Test No. 11C
Alarm Type: PETERZELL CO.

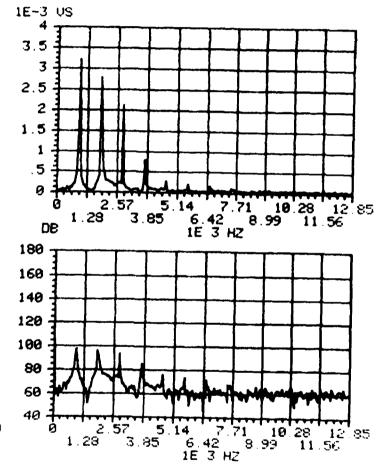
Driving Vapor FREON 12
Temperature 72 °F
Pressure 17 psig
Flowrate 10.24 std 1/m
Meter Setting 90 dB

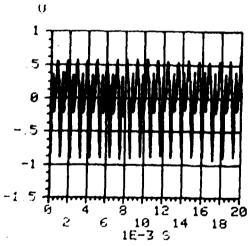






Alarm Test No.	11D
Alarm Type:	FALCON SAFETY
PRODUCTS CO.	
Driving Vapor	FREON 12
Temperature _	73 °F
Pressure	25 psig
Flowrate	5.76 std 1/m
Meter Setting	90 dB



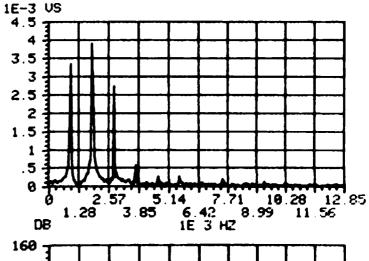


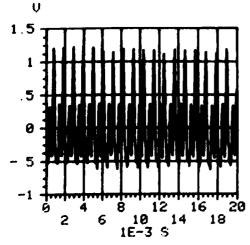
Alarm Test No. 110

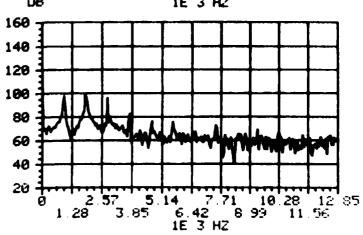
Alarm Type: FALCON SAFETY
PRODUCTS CO.

Driving Vapor FREON 12

Temperature 73 °F
Pressure 25 psig
Flowrate 5.76 std 1/m
Meter Setting 90 dB

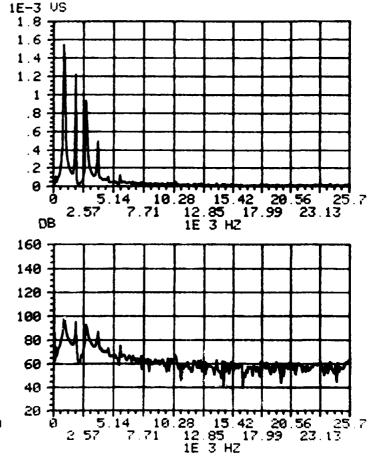


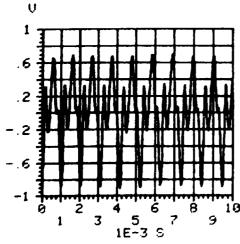




Alarm Test No. 11D

Alarm Type: FALCON SAFETY
PRODUCTS CO.
Driving Vapor FREON 12
Temperature 73 °F
Pressure 25 psig
Flowrate 5.76 std 1/m
Meter Setting 90 dB

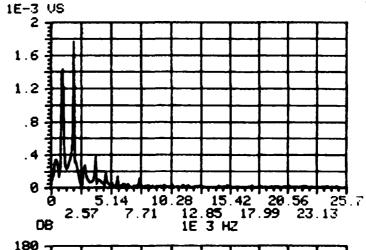


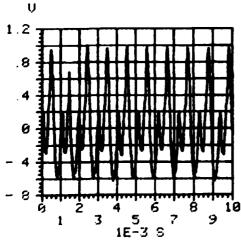


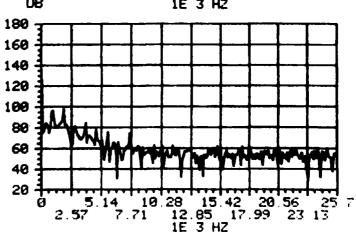
Alarm Test No. 11D

Alarm Type: FALCON SAFETY
PRODUCTS CO.

Driving Vapor FREON 12
Temperature 73 °F
Pressure 25 psig
Flowrate 5.76 std 1/m
Meter Setting 90 dB







Alarm Test No. CAL TEST 2.5 Alarm Type: 2 Driving Vapor FREON 12 Temperature 1.5 Pressure psig Flowrate std 1/m Meter Setting 70 1 . 5 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ DB 1E-3 V 300 140 120 200 100 -100 80 9 60 -100 40 -299 20 0 -300 12 16 10 14 18 1E-3 S 2.57 5.14 7.71 10 1.28 3.85 6.42 8.99 1E.3 HZ 11.56 2

1E-3 US

1E-3 US Alarm Test No. CAL TEST 2.5 Alarm Type: 2 Driving Vapor FREON 12 Temperature 1.5 \_\_\_psig std 1/m Pressure Flowrate 70 dB 1 Meter Setting . 5 0 2.57 5.14 7.71 10.28 12.85 1.28 3.85 6.42 8.99 11.56 1E 3 HZ 1E-3 V 140 300 120 200 100 100 80 0 60 -100 40 -200 20 0 -300 2.57 5.14 7.71 10.28 1.28 3.85 6.42 8.99 11 1E 3 HZ 8 12 16 10 14 1 1E-3 S 6 2 18 11.56

1E-3 US Alarm Test No. CAL TEST Alarm Type: 1 Driving Vapor FREON 12 .8 -Temperature \_\_\_\_\_ psig Pressure .6 std 1/m Hiowrate Meter Setting 70 .2 . 5,14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ 90 1E-3 U 140 300 120 299 100 100 80 9 60 -100 40 20 -200 10.28 15 42 20.56 25 7 71 12.85 17.99 23.13 1E 3 HZ

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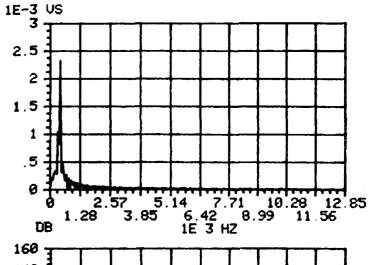
7 5 1E-3 5

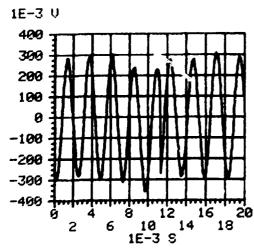
5.14 16 2.57 7.71

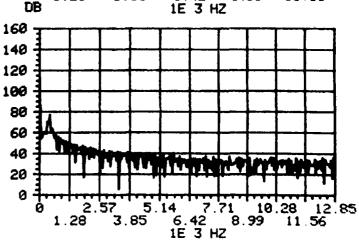
1E-3 US Alarm Test No. CAL TEST 1.4 Alarm Type: 1.2 Driving Vapor FREON 12 1 Temperature .8 psig Pressure std 1/m Flowrate . 6 Meter Setting . 2 5.14 10.28 15.42 20.56 25.7 2.57 7.71 12.85 17.99 23.13 1E 3 HZ DB 1E-3 U 160 300 140 200 120 100 100 80 0 60 -100 40 -200 20 0 -300 10.28 15.42 20.56 25.7 1 12.85 17.99 23.13 15 3 HZ 5 1E-3 S 9 3

Alarm Test No. CAL TEST
Alarm Type:

Driving Vapor FREON 12
Temperature Pressure psig
Flowrate std 1/m
Meter Setting 70 d8

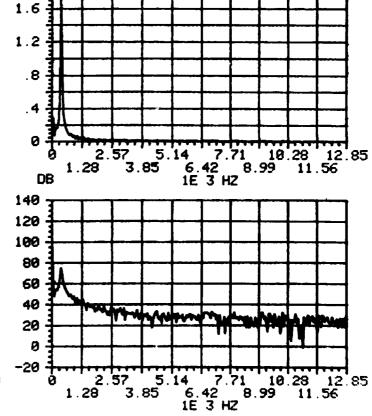


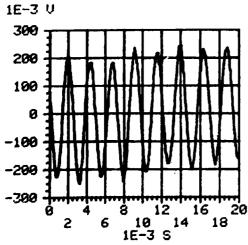




Alarm Test No. CAL TEST
Alarm Type:

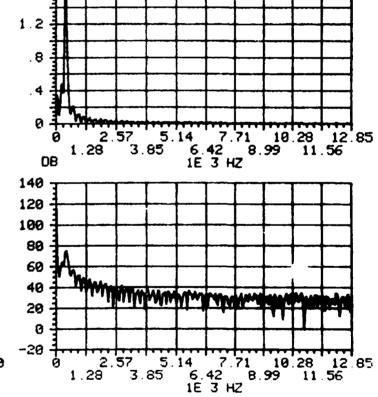
Driving Vapor FREON 12
Temperature psig
Flowrate std 1/m
Meter Setting 70 dB

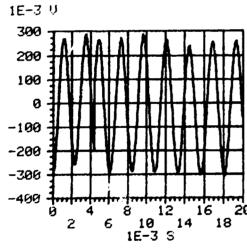




1E-3 US

Alarm lest No.	CAL ILSI
Alarm Type:	
, .	
Driving Vapor	FREON 12
Temperature	The second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of th
Pressure	ps1q
Flowrate	5td 1/m
Meter Setting	70 dB
,	





1E-3 US

1.6

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1000 DELETE B1,B$,A,AA
1995 PAGENPRINT "INPUT DB RANGE"; NINPUT DB 1910 PAGENPRINT "ENTER SIGNAL LOCATION "; NINPUT B1, B$
1015 NAVEFORM A IS AA(511), SA, HA$, VA$
1020 GET A FROM #81.8$
1025 A=A-MEA(A)
1030 DELETE AR, RA, AI, IA
1035 WAUEFORM AR IS RAC256), S1, H1$, V1$
1040 WAUEFORM AI IS IAC256), S2, H2$, V2$
1045 RFFT A, AR, AI
1050 POLAR AR, AI
1055 IF DB=70 THEN 1065
1060 IF DB=90 THEN 1090
1065 IF S1<75 THEN 1080
1070 C=15.2
1075 GOTO 1115
1080 C=14.6741
1085 GOTO 1115
1090 IF S1<75 THEN 1105
1095 C=17.6261
1100 GOTO 1115
1105 C=16.9473
1119 GOTO 1115
1115 IA=20*(LOG(RA)+C)/LOG(10)
1120 U2$="D8"
1125 INITG
1125 INTIG

1130 PRINT\PRINT "SIGNAL LOCATION ";81;8$

1135 PRINT "DB RANGE= ";DB

1140 VIEWPORT 75,400,75,363

1145 SETGR VIEW

1150 GRAPH A
1155 UIEMPORT 500,1000,463,750
1160 SETGR VIEW
1165 GRAPH AR
```

```
1170 UIEWPORT 500,1000,75,363
1175 SETGR VIEW
1180 GRAPH AINWAIT
1185 GOTO 1010
```

READY \*

## AGENT DISCHARGE TESTS

TEST No.	FUEL LOAD	RELEASE	AGENT MASS 9	DISPENSER TYPE, ORIENTATION, LIQUID (L) OR VAPOR (V)	EXTINGUISHED FIRE?
-	paper 12 sheets	ign. + 28 s.	95 (est)	thin wall 1/16 in. holes, horizontal into receptacle, V	yes
7	paper 12 sheets	ign. + 37 s.	95 (est)	thin wall 1/64 in. holes, horizontal into receptacle, V	Ou
ო	paper 12 sheets	200 <sup>0</sup> F + 15 s.	7.8	1/8 in. tubing 12 in. long, 45 <sup>0</sup> angle down tangent, V	OL .
4	paper 12 sheets	200 <sup>0</sup> F + 15 s.	29.4	1/8 in. tubing 12 in. long, 45 <sup>0</sup> angle down tangent, L	yes
\$	paper 24 sheets	350 <sup>0</sup> F + 0 s.	57 (est) (30 ml)	1/4 in. tubing 12 in. long, vertical downward, L	yes
9	paper 24 sheets	200 <sup>o</sup> F + 15 s.	57 (est) (30 ml)	1/4 in. tubing 12 in. long, vertical downward, V	yes
^	paper 24 sheets	300 <sup>o</sup> F + 15 s.	57 (est) (30 ml)	<pre>1/8 in. tubing 12 in. long, vertical downward, L</pre>	yes
∞	paper 24 sheets	300 <sup>o</sup> f + 15 s.	57 (est) (30 ml)	1/8 in. tubing 12 in. long, vertical down-ward, V	0 <b>u</b>
6	paper 24 sheets	$300^{\circ}$ F + 15 s.	57 (est) (30 ml)	1/4 in. tubing with "T", horizontal tangent opposed, V	0 0
10	paper 6 reams (72 sheets)	1090 <sup>0</sup> F + 0 s.	57 (est) (30 ml)	1/4 in. tubing 12 in. long, vertical down- ,ward, L	yes
11	paper 6 reams (72 sheets)	900 <sup>0</sup> F + 0 s. (deep seated)	57 (est) (30 ml)	1/4 in. tubing 12 in. long, vertical down-ward, V	

(continued)

## AGENT DISCHARGE TESTS (continuation)

EXTINGUISHED FIRE?	yes	ou U	yes
DISPENSER TYPE, ORIENTATION, LIQUID (L) OR VAPOR (V)	57 (est) 1/8 in. tubing 12 in. long, vertical down- (30 ml) ward, L	57 (est) 1/8 in. tubing 12 in. long, vertical down- (30 ml) ward, V	+,33 sec. 33.5 (est) piston valve extinguisher/alarm, 60 <sup>0</sup> down- ward tangential, L
AGENT MASS q	57 (est) (30 ml)	57 (est) (30 ml)	33.5 (est
RELEASE	$600^{0}$ F + 0 s. (deep seated)	$900^{0}$ F + 0 s. (deep seated)	ign. + 33 sec.
FUEL LOAD	paper 6 reams (72 sheets)	paper 6 reams (72 sheets)	paper 40 sheets
TEST No.	12	13	14

## SYSTEM EVALUATION TESTS

SAFE CAN Test No	1					<del></del>
Receptacle Sizesm	nall can		Fue1	l Load _	12 sheet	<u>s</u>
SAFE CAN Size _small	can	Unit	No	_1 A1	arm No	1
Empty Wt. (g)248	3.1 gm.			<del> </del>		<del></del>
Bottom Full Wt. (g)	349.2 gi	m				<del>_</del>
Top Full Wt. (g)	109.9 g.					
Receiver Mike at	120_		°	and	9_feet	from alarm
Time "0" is2	20			second	s after i	gnition
Response Time3	35			seconds		
Alarm Duration	80			seconds		
Fire Extinguished? _						
Alarm Detected?	yes					
Peak Temp. 1346		_at	10	sec.	Sensor	03
Thormocouple Arrange	ement No	4				

Sensor -		TEMP	°F		
Time	01	02	03	04	
0	73	70	1047	89	
5	75	72	1270	106	
10	79	79	1346	174	
15	80	120	1184	788	
20	288	234	989	1022	
25	622	279	690	1004	
30	958	461	740	1018	
35	434	435	419	422	

SAFE CAN Test No. 2			
Receptacle Size Large can		Fuel Load	40 sheets
SAFE CAN Size <u>Large</u>	Unit	No2 A	larm No. 2
Empty Wt. (g) 296.8 gms	•		
Bottom Full Wt. (g) 500.	l gms.		
Top Full Wt. (g) 552.6	gms.		
Receiver Mike at	90	o and	g feet from alarm
Time "0" is		secon	ds after ignition
Response Time 23		seconds	~
Alarm Duration <u>55</u>		seconds	
Fire Extinguished? <u>yes</u>			
Alarm Detected? <u>yes</u>	· · · · · · · · · · · · · · · · · · ·		
Peak Temp. 1058	_at _	10 sec.	Sensor <u>03</u>
Thermocouple Arrangement No	. 4		

Sensor		TEMP	°F		
Time	01	02	03	04	
0	91	137	242	95	
5	186	597	922	197	
10	340	822	1058	331	
20	583	964	992	714	
25	557	649	662	463	
30	385	397	373	290	

SAFE CAN Test No. 3 Receptacle Size <u>Large can</u> Fuel Load <u>40 sheets</u> SAFE CAN Size <u>Large</u> Unit No. 4 Alarm No. Empty Wt. (g) 298.7 gms. Bottom Full Wt. (g) 502.6 gms. Top Full Wt. (g) 549.9 gms. Receiver Mike at \_\_\_\_ and feet from alarm Time "O" is 5 sec. \_\_seconds after ignition Response Time 40 sec. seconds Alarm Duration 10 seconds Fire Extinguished? yes Alarm Detected? no 10 sec Peak Temp. 1165°F at Sensor 03 Thermocouple Arrangement No. 4

Sensor	<del></del>	TEMP	°F		
Time	01	02	03	04	
0	77	78	497	81	
5	79	126	1133	85	
10	89	785	1165	167	
15	233	885	1015	316	
20	391	958	857	704	
25	519	941	739	704	
30	635	883	813	837	
35	777	849	738	740	
40	419	505	429	352	

SAFE CAN Test No. 4 Fuel Load 12 sheets Receptacle Size <u>Small Can</u> SAFE CAN Size Small Can Unit No. 1 Alarm No. 1 Empty Wt. (g) 249.0 gm. Bottom Full Wt. (g) 344.2 Top Full Wt. (g) 411.8 feet from alarm 120 and Receiver Mike at \_ seconds after ignition Time "0" is \_\_\_\_ seconds Response Time seconds Alarm Duration \_\_\_ Fire Extinguished? yes Alarm Detected? \_\_\_ Peak Temp. 1167 25 sec. Sensor <u>02</u> at Thermocouple Arrangement No. 4

Sensor		TEMP	о <sub>F</sub>		
Time	01	02	03	04	<del></del>
0	76	75	225	77	
5	79	85	687	87	
10	85	585	1011	105	
15	86	1011	1085	115	
20	93	1008	940	517	
25	204	1167	995	965	
30	19	1019	1053	882	
35	10	602	523	· 440	
40	38	415	39ძ	300	

SAFE CAN Test No. 5 Receptacle Size <u>Large Can</u> Fuel Load <u>40 sheets</u> SAFE CAN Size <u>Large Can</u> Unit No. 2 Alarm No. 2 Empty Wt. (g) 297.3 gm. Bottom Full Wt. (g) 498.6 gm. Top Full Wt. (g) \_\_\_\_550.9 gm. o and \_ Receiver Mike at 90 9 feet from alarm Time "0" is \_\_\_\_\_10 \_\_\_\_seconds after ignition Response Time 35 sec. \_\_\_\_seconds Alarm Duration seconds Fire Extinguished? <u>yes</u> Alarm Detected? <u>yes</u> Peak Temp. 1186 Sensor <u>03</u> at 20 Thermocouple Arrangement No. 4

2			0		
Sensor		TEMP	0 <sub>F</sub>		
Time	01	02	03	04	
0	73	91	320	146	
5	76	99	474	634	
10	78	106	744	692	
15	80	435	984	759	
20	125	1015	1186	1038	
25	360	1110	1067	1029	
30	690	959	1051	1064	
35	28	753	697	627	

SAFE CAN Test No. 6 Receptacle Size Small Can Fuel Load 12 sheets SAFE CAN Size Small Can Unit No. 1 Alarm No. 3 Empty Wt. (g) 247.7 Bottom Full Wt. (g) 346.2 Top Full Wt. (g) 441.3 Receiver Mike at 9 feet from alarm and Time "0" is \_\_\_\_5 seconds after ignition Response Time 30 seconds Alarm Duration 65 seconds Fire Extinguished? yes Alarm Detected? yes Peak Temp. 933 15 sec. \_\_\_Sensor \_\_03 Thermocouple Arrangement No. 4

Sensor		TEMP	° <sub>F</sub>		
Time	01	02	03	04	
0	77	83	209	76	
5	80	96	510	80	
10	90	544	847	82	
15	105	603	933	92	
20	131	574	864	127	
25	440	424	924	565	
30	14	401	756	752	
35	12	357	438	411	

SAFE CAN Test No. 7	
Recept <b>a</b> cle Size <u>Large Can</u>	Fuel Load 40 sheets
SAFE CAN Size <u>Large Can</u> Unit	t No. 2 Alarm No. 2
Empty Wt. (g) 296.2 gm	
Bottom Full Wt. (g) <u>499.0 gm.</u>	
Top Full Wt. (g)591.7 gm.	
Receiver Mike at45	o andg feet from alarm
Time "0" is0	seconds after ignition
Response Time35	seconds
Alarm Duration 67	seconds
Fire Extinguished? <u>yes</u>	
Alarm Detected? <u>yes</u>	
Peak Temp. <u>1422</u> at	15 sec Sensor <u>03</u>
Thermocouple Arrangement No. 4	

Sensor		TEMP OF				
Time	01	02	03	04		
0	75	78	236	76		
5	77	82	1110	77		
10	82	94	1400	80		
15	137	166	1422	535		
20	232	378	1343	1206		
25	405	742	970	1320		
30	706	882	775	1208		
35	9	502	464	549		
40	9	278	256	269		

SAFE CAN Test No. 8
Receptacle Size <u>Large Can</u> Fuel Load <u>40 sheets</u>
SAFE CAN Size <u>Large Can</u> Unit No. 4 Alarm No. 2
Empty Wt. (g) 300.1 gm.
Bottom Full Wt. (g) 503.4 gm.
Top Full Wt. (g) 584.0 gm
Receiver Mike at 90 o and 9 feet from alarm
Time "O" is seconds after ignition
Response Time 40 seconds
Alarm Duration <u>245</u> seconds
Fire Extinguished? <u>yes</u>
Alarm Detected? <u>yes</u>
Peak Temp. <u>1372</u> at <u>10 sec.</u> Sensor <u>03</u>
Thermocouple Arrangement No. 4

C			0-	
Sensor	<del></del>	TEMP	, ° <sub>F</sub>	
Time	01	02	03	04
0	77	77	410	77
5	80	82	718	82
10	83	87	1372	105
15	93	152	1372	436
20	118	287	1280	414
25	408	521	1126	1016
30	710	869	1111	1147
35	826	1122	1209	1210
40	13	892	926	788
45	12	441	466	387

SAFE CAN Test No.		9						
Receptacle Size _		Small	Can	Fuel	Load	12	sheets	S
SAFE CAN Size	Sma1	1 Can	Unit	No	1	Alarm	No.	3
Empty Wt. (g)	248.	2 g.						
Bottom Full Wt. (		347.8	g					
Top Full Wt. (g)		445.0	g					
Receiver Mike at	90			O a	nd	10	feet	from alarm
Time "O" is	0				seco	nds af	 ter ig	nition
D	E 0							
Response Time	50			s	econd:	S		
Response Time	59				econd: econd:			
nesponse time	59	yes						
Alarm Duration	59 ?	yes yes						
Alarm Duration Fire Extinguished	59 ?	yes	at _	s		5	ensor	03

			p <sup>O</sup> F		•
Sensor		TEM			
Time	01	02	03	04	
0	74	74	355	75	
5	74	74	933	773	
10	78	79	1209	76	
15	81	82	1262	81	
20	86	87	1253	89	
25	93	94	1038	114	
30	104	100	1204	141	
35	111	112	1380	159	
40	204	135	1277	349	
45	541	466	993	770	
50	10	551	797	569	
55	9	393	415	207	

SAFE CAN Test No	·	1.0							
Recept <b>a</b> cle Size		Large	Can	Fue	1 Load	40	sheet	S	
SAFE CAN Size	Large	Can	Unit	No.	2	Alarm	No	2	
Empty Wt. (g)	296.9	g							
Bottom Full Wt.	(g) _	498.4							
Top Full Wt. (g)		592.2	g						
Receiver Mike at	4	5		0	and	9	feet	from	alarm
Time "O" is	20				seco	nds af	ter ig	nitio	n
Response Time	35				second	S			
Alarm Duration _	200	V			second	S			
Fire Extinguishe	d?	yes			<del>-</del>				
Alarm Detected?		Yes							
Peak Temp.	1321°	F	_at _	15 se	С	S	ensor	02	
Thermocouple Arr	angem	ent No.	. 4						

Sensor		TEMP "F					
Time	01	02	03	04			
0	72	389	145	73			
5	78	1043	221	76			
10	87	8 <b>66</b>	655	85			
15	135	1321	875	135			
20	471	1264	973	424			
25	693	1139	933	640			
30	870	1075	1016	812			
35	450	792	605	445			

SAFE CAN Test No. 11 Receptacle Size Small Can Fuel Load 12 sheets SAFE CAN Size Small Can Unit No. 3 Alarm No. 3 Empty Wt. (g) \_\_\_\_254.6 Bottom Full Wt. (g) 341.0 Top Full Wt. (g) 440.8 Receiver Mike at \_\_\_\_\_108 and 10 feet from alarm Time "0" is 20 seconds after ignition Response Time 30 sec. seconds Alarm Duration 30seconds Fire Extinguished? <u>yes</u> Alarm Detected? Peak Temp. 1087 0 sec. Sensor 04 at Thermocouple Arrangement No. 4

Sensor		TEMP	° <sub>F</sub>		
Time	01	02	03	04	
0	79	76	148	1087	
5	126	82	705	1081	
10	351	88	732	1023	
15	492	272	775	882	
20	532	407	717	793	
25	622	318	591	865	
30	-13	358	403	531	
35	-28	303	275	278	

SAFE CAN Test No. 12 Receptacle Size Large Can Fuel Load 40 sheets SAFE CAN Size Large Can Unit No. 4 Alarm No. 1 Empty Wt. (g) 299.7 Bottom Full Wt. (g) 500.5 Top Full Wt. (g) \_\_\_\_\_594.8 Receiver Mike at 90 and 10 feet from alarm Time "0" is \_\_\_\_\_\_15 seconds after ignition Response Time 30 seconds Alarm Duration Failed seconds Fire Extinguished? **yes** Alarm Detected? no Peak Temp. 1279 at 15 sec. Sensor 02 Thermocouple Arrangement No. 4

Sensor		TEMP	°F		
Time	01	02	03	04	
0	71	302	119	72	
5	77	1211	669	87	
10	82	1132	1096	113	
15	102	1279	<b>96</b> 8	426	
20	363	1193	992	768	
25	954	990	796	953	
30	- 15	755	567	614	
35	15	381	282	234	

SAFE CAN Test No. 13 Receptacle Size Large Can Fuel Load 40 sheets SAFE CAN Size Large Can Unit No. 6 Alarm No. 4 Empty Wt. (g) 294.3 490.2 Bottom Full Wt. (g) Top Full Wt. (g) 584.9 Receiver Mike at 30 10 feet from alarm and Time "0" is 10 \_\_seconds after ignition Response Time 45 seconds Alarm Duration seconds Fire Extinguished? yes Alarm Detected? no 1099 20 sec. Sensor <u>03</u> Peak Temp. at Thermocouple Arrangement No. 4

Sensor		TEMP	o <sub>F</sub>		
Time	01	02	03	04	
0	66	68	231	66	
5	66	69	677	66	
10	66	69	1053	66	
15	67	71	970	66	
20	72	89	1099	78	
25	85	546	961	369	
30	114	930	1074	595	
35	489	962	828	523	
40	650	857	852	891	
45	842	923	849	879	
50	486	570	489	485	

SAFE CAN Test No.	<u>_1</u> 4						
Recept <b>a</b> cle Size				ad	12 she	ets	
SAFE CAN Size	Small Can	Unit	No. <u>1</u>	Alar	rm No	4	
Empty Wt. (g)	254.36				· · · · · · · · · · · · · · · · · · ·		
Bottom Full Wt.							
Top Full Wt. (g)	442.2			·			
Receiver Mike at	180		o and	10	feet	from	alarm
Time "0" is	25		s e	conds	after i	gnitio	n
Response Time	20		seco	nds			
Alarm Duration _	Failed		seco	nds			
Fire Extinguished	l?yes						
Alarm Detected? _	no						
Peak Temp. 8	62	at	10 se	ec	_Sensor	03_	
Thermocouple Arra	ingement No.	.4					

Sen		T <u>E</u> MP	o <sub>F</sub>		
Sensor Time	01	02	03	04	
0	68	61	641	63	
5	162	120	775	264	
10	676	366	862	481	
15	345	637	699	756	
20	-19	488	520	730	
25	-14	445	352	454	
30	-12	363	262	303	

SAFE CAN Test No. \_\_\_\_15 Receptacle Size Large Can Fuel Load 40 sheets SAFE CAN Size <u>Large Can</u> Unit No. 2 Alarm No. 4 Empty Wt. (g) 295.9 Bottom Full Wt. (g) 498.8 Top Full Wt. (g) \_\_\_ 592.0 o and 10 Receiver Mike at \_\_\_\_45 feet from alarm Time "0" is 15 seconds after ignition Response Time 35 seconds Alarm Duration 420 seconds Fire Extinguished? \_\_\_ yes Alarm Detected? yes Peak Temp. 1192 at 20 sec. Sensor <u>03</u> Thermocouple Arrangement No. 4

Sensor         TEMP of           Time         01         02         03         04           0         63         68         255         62           5         65         79         759         64
55 255 02
E
5 65 79 759 64
10 70 105 1139 68
15
20 98 735 1192 183
25 146 862 1112 373
30 375 893 916 917
35 12 837 714 9 <u>1</u> 3
5 453 343 441

SAFE CAN Test No.	16					
Receptacle Size	Small Can		_ Fuel Loa	d	12 sheet	.s
SAFE CAN SizeSma	all Can	Unit	No. <u>3</u>	Ala	rm No	2
Empty Wt. (g)254	1.3					·
Bottom Full Wt. (g)	341.3					
Top Full Wt. (g)	440					
Receiver Mike at	180		$^{ m o}$ and $^{ m -}$	10	feet	from alarm
Time "0" is						
Response Time 55			secon	ds		
Alarm Duration 30	2		secon	ds		
Fire Extinguished?	yes	<del></del>				
Alarm Detected?	yes					
Peak Temp. 981		at _	45 sec.		Sensor	_03
Thermocouple Arrang	ement No	Λ				

Sensor		TEMP	° <sub>F</sub>	
Time	01	02	03	04
0	54	76	216	53
5	54	101	639	53
10	55	151	715	67
15	56	627	608	72
20	59	753	788	94
25	119	909	969	121
30	386	892	909	617
35	363	951	867	939
40	395	898	804	731
45	328	960	981	654
50	303	896	905	672
55	11	544	491	463
60	4	416	341	307

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SAFE CAN Test No. 17
Receptacle Size Large can Fuel Load 40 sheets
SAFE CAN Size Large Unit No. 4 Alarm No. 2
Empty Wt. (g) 299.5
Bottom Full Wt. (g) <u>500.0</u>
Top Full Wt. (g) 595.1
Receiver Mike at 90 o and 10 feet from alarm
Time "0" isseconds after ignition
Response Time 35 seconds
Alarm Duration 48 seconds
Fire Extinguished? _yes
Alarm Detected?yes
Peak Temp. 1129 at 20 sec. Sensor 03
Thermocouple Arrangement No. 4

ime         01         02         03         04           0         55         55         597         55           5         60         61         828         68           10         84         72         725         396           15         81         255         990         318           20         108         400         1129         291           25         484         542         814         569           30         741         706         769         846           35         -7         624         549         572	Sensor -		TEMP OF				
5     60     61     828     68       10     84     72     725     396       15     81     255     990     318       20     108     400     1129     291       25     484     542     814     569       30     741     706     769     846       35     -7     624     549     572	Time	01	02	03	04		
84     72     725     396       85     81     255     990     318       80     108     400     1129     291       85     484     542     814     569       80     741     706     769     846       85     -7     624     549     572	0	55	55	597	55		
81 255 990 318 20 108 400 1129 291 25 484 542 814 569 30 741 706 769 846 35 -7 624 549 572	5	60	61	828	68		
108 400 1129 291 25 484 542 814 569 30 741 706 769 846 35 -7 624 549 572	10	84	72	725	396		
484 542 814 569 80 741 706 769 846 85 -7 624 549 572	15	81	255	990	318		
741 706 769 846 75 -7 624 549 572	20	108	400	1129	291		
-7 624 549 572	25	484	542	814	569		
. 024 543 572	30	741	706	769	846		
0	35	<b>-</b> 7	624	549	572		
-6 338 284 284	40	-6	338	284	284		

SAFE CAN Test No. 18				
Receptacle Size Small	Can	Fuel Load	10 cloth rags	
SAFE CAN Size Small Car	Unit	No. <u>1</u>	Alarm No. 1	
Empty Wt. (g) 253.6				
Bottom Full Wt. (g) 35	3.0			
Top Full Wt. (g)44	2.3			
Receiver Mike at45		$_{\rm o}^{\rm o}$ and $_{\rm o}^{\rm o}$	10 feet from alar	m
Time "0" is 183 (smoulde	ring)	seco	onds after ignition	
Response Time 0		second	ds	
Alarm Duration 10		second	is	
Fire Extinguished? <u>yes</u>		<del></del> -		
Alarm Detected? <u>no</u>				
Peak Temp187	at		Sensor <u>01</u>	
Thermocouple Arrangement	No. 4			
Sensor		TEMP OF		
Time	01	02	03 04 _	

NOTE: FIRE NEVER WENT OVER 200°F

SAFE CAN Test No	19							
Receptacle Size	Small Can		Fuel Loa	id 10 c1	oth ra	gs/2 oz	. isoprpopyl	alcohol
SAFE CAN Size Small								4.0001
Empty Wt. (g) 247	.6							
Bottom Full Wt. (g)	345.0							
Top Full Wt. (g)	443.	3						
Receiver Mike at	45		$_{\rm and}^{\rm o}$	10	_feet	from al	arm	
Time "0" is	5		sec					
Response Time	90		secor	nds				
Alarm Duration	fail	ed	secor	nds				
Fire Extinguished?	yes							
Alarm Detected?	no	·						
Peak Temp	1220	at4(	sec.		Sensor	03		
Thermocouple Arrange	ement No	Λ						

Sensor	<del></del>	TEMI	<sup>o</sup> F		
Time	01	02	03	04	
0	65	66	464	75	
5	76	76	652	85	
10	75	82	807	85	
15	82	90	949	102	
20	92	111	1001	116	
25	89	101	1053	108	
30	85	100	1129	110	
35	81	92	1211	108	
40	82	94	1220	110	
45	85	<b>9</b> 8	832	238	
50	88	95	696	339	
60	. 91	96	693	411	
65	181	144	716	517	
70	361	249	<b>65</b> 8	511	
75	519	317	702	514	
80	601	230	647	517	
85	545	268	474	436	
90	717	266	400	408	
95	<b>-</b> 9	288	348	349	
100		346			

 SAFE CAN Test No.
 20 / 2402 & Freon 12

 Receptacle Size
 Large
 Fuel Load
 40 sheet

 SAFE CAN Size
 Large
 Unit No.
 2
 Alarm No.
 1A

 Empty Wt. (g)
 287.8
 Bottom Full Wt. (g)
 498.1

 Top Full Wt. (g)
 546.7
 Seconds
 Trom alarm

 Time "0" is
 10
 seconds after ignition

 Response Time
 15
 seconds

 Alarm Duration
 Failed
 seconds

 Fire Extinguished?
 Yes

 Alarm Detected
 No

 Peak Temp.
 694°F
 at
 5 sec
 Sensor
 03

 Thermocouple Arrangement No.
 4

Sensor		TEMP	°F		
Time Sec.	01	02	03	04	
0	148	106	422	78	
5	648	465	694	180	
10	438	309	377	197	
15	279	217	224	146	
20	216	174	180	131	

SAFE CAN Test No. 21 / 2402 & Freon 12 Receptacle Size <u>Large</u> Fuel Load <u>7 reams</u> SAFE CAN Size <u>Large</u> Unit No. 2 Alarm No. <u>1B</u> Empty Wt. (g) 294.8 Bottom Full Wt. (g) 499.2 Top Full Wt. (g) \_\_\_\_\_544.3 o and 10 ft from alarm Receiver Mike at 180 seconds after ignition Time "0" is <u>15 sec</u> Response Time 50 \_\_\_\_\_ seconds Alarm Duration \_\_\_\_\_170 \_\_\_\_\_ seconds Fire Extinguished? Flames put down, but continued to smolder Alarm Detected Yes Peak Temp. 543°F at \_\_\_\_ 35 sec Sensor <u>03</u> Thermocouple Arrangement No. 4

Sensor		TEMP	°F		
Time Sec.	01	02	03	04	
0	95	78	129	221	
5	104	99	165	357	
10	209	231	179	428	
15	301	223	171	427	
20	327	209	205	499	
25	272	242	283	448	
30	240	197	325	498	
35	184	295	543	461	
40	284	533	470	442	
45	319	440	425	491	
50	254	332	415	572	

SAFE CAN Test No.	22 / 240	02 & F	reon	12			
Recept <b>a</b> cle Size <u>La</u>							l cloth
SAFE CAN Size La							
Empty Wt. (g) 298	.0						
Bottom Full Wt. (g)	502.1						
Top Full Wt. (g)	544.2				<del></del>		
Receiver Mike at	180		0	and _	10	ft	from alarm
Time "O" is	10			_ sec	onds at	fter	ignition
Response Time	80			secon	d's		
Alarm Duration							
Fire Extinguished?	Yes						
Alarm Detected	Yes						
Peak Temp. 966 I	Γ	at	30	sec	9	Senso	or <u>03</u>
Thermocouple Arranger	ment No.	4					

Sensor		TEMP °F						
Time Sec.	01	02	03	04				
0	65	71	224	75				
10	69	250	435	74				
20	72	298	811	86				
30	205	258	966	459				
40	174	365	897	502				
50	351	448	772	645				
60	445	610	952	785				
70	653	637	788	589				
80	447	417	461	438				

SAFE CAN Test No.	23 / 2402 &	Freo	12			
Receptacle Size	Small	Fu	el Loa	d <u>12</u>	2 she	ets
SAFE CAN Size Sma	all Unit	No.	1	Alarm	No.	<u>1C</u>
Empty Wt. (g)25	0.0					
Bottom Full Wt. (g)	351.2					
Top Full Wt. (g)	410.8					
Receiver Mike at	180	٥	and _	10	_ ft	from alarm
Time "0" is	15		sec	onds at	fter	ignition
Response Time	10		secon	ds		
Alarm Duration	42		secon	ds		
Fire Extinguished? _	Yes					
Alarm Detected	Yes					
Peak Temp. 510 F	at	0 9	ec	S	enso	r 02
Thermocouple Arrangem	ment No. 4					

Sensor	TEMP °F							
Time Sec.	01	02	03	04				
0	305	510	83	222				
5	125	498	426	396				
10	8	274	225	178				

SAFF CAN Test No. 24/2402 & Freon 12								
Receptacle Wise Small Fuel Load 4 reams								
SAFE CAN Size Smal	<u>1</u> Un	it No.	1 Alar	m No.	1D			
Empty Wt. (g) 245.	6							
Bottom Full Wt. (g)	050 4							
Top Full Wt. (g)								
Receiver Mike at	90		and 10	ft	from alarm			
Time "O" is	40		seconds	after	ignition			
Response Time	5		seconds					
Alarm Duration	Failed		seconds					
Fire Extinguished?	Yes							
Alarm Detected	No							
Peak Temp. 35	<u>1</u> at	0_sec	<u> </u>	Senso	or <u>nı</u>			
Thermocouple Arrangeme	ent No. 4							

Sensor		TEMP	۰Ł		
Time Sec.	01	02	03	04	
0	351	109	144	71	
5	18	136	251	89	
10	14	135	237	100	

 SAFE CAN Test No.
 25

 Receptacle Size
 Small
 Fuel Load
 4 reams

 SAFE CAN Size
 Small
 Unit No.
 3 Alarm No.
 2A

 Empty Wt. (g)
 247.2
 247.2
 247.2
 247.2
 247.2
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Sensor		TEMP °F							
Time Sec.	01	02	03	04					
0	59	56	66	227					
5	67	62	250	347					
10	90	71	703	525					
15	182	78	840	632					
20	92	208	713	827					
25	-20	172	403	459					

SAFE CAN Test No. 26		
	ll Fuel Load 4 reams	
SAFE CAN Size Small	Unit No. 1 Alarm No. 1F	
Empty Wt. (g) 246.8		
	348.1	
Top Full Wt. (g)	405.2	
Receiver Mike at	180 ° and $10$ ft from al	arm
Time "0" is	20 seconds after ignitio	n
Response Time	70 seconds	
Alarm Duration	35 seconds	
Fire Extinguished?	Yes	
Alarm Detected	Yes	
Peak Temp. 1063 F	at 25 sec Sensor 02	
Thermocouple Arrangemen	t No. 4	

Sensor		TEMP °F						
Time Sec.	01	02	03	04				
0	65	271	94	61				
5	65	447	98	61				
10	67	631	127	63				
15	83	904	169	66				
20	87	1020	241	70				
25	102	1063	613	80				
30	114	912	943	97				
34,	182	887	838	133				
40	281	883	796	194				
4 <sup>1</sup> ,	339	838	852	178				
5()	319	868	851	165				
$i_i t_j$	268	960	79%	159				
60	263	850	642	157				
64,	204	850	70%	354				
70	-16	344	328	228				
		252						

SAFE CAN Test No.	27							
Receptacle Size La	rge		Fu	el Loa	ıd¹	Full	of	cloth
SAFE CAN Size Lar	ge	Unit	No.	2	Alarm	No.	1E	
Empty Wt. (g)2	96.1		<u>-</u>					
Bottom Full Wt. (g)								
Top Full Wt. (g)								
Receiver Mike at			•	and	10	_ ft	from	alarm
Time "O" is				sec	onds a	fter	igni	tion
Response Time				secon	ıds			
Alarm Duration	30			secon	ıds			
Fire Extinguished?	Yes							
Alarm Detected	Yes							
Peak Temp. 510	F	at _		25 sec		Senso	r	03
Thermocouple Arrangem	nent No.	. 4						

Sensor	TEMP °F						
Time Sec.	01	02	03	04			
0	94	160	263	110			
5	135	272	265	122			
10	152	349	444	188			
15	491	362	349	357			
20	431	458	486	350			
25	491	455	510	480			
30	1	420	417	397			

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SAFE CAN Test No. 28	
Receptacle Size Large Fuel Load 1/2 Full of clo	th
SAFE CAN Size Large Unit No. 4 Alarm No. 1E	
mpty Wt. (g) 297.1	
3ottom Full Wt. (g)501.1	_ <u>.</u>
op Full Wt. (g)547.1	
Receiver Mike at $\underline{}$ 180 $\underline{}$ and $\underline{}$ ft from a	larm
ime "O" is seconds after ignition	on
Response Time 55 seconds	
Response lime 55 seconds  Alarm Duration 54 seconds	
	older
Narm Duration 54 seconds	older
Narm Duration 54 seconds Fire Extinguished? Flames were put down, but continued to small	

Sensor		TEMF	> °F		
Time Sec.	01	02	03	04	
0	88	200	221	112	
5	96	263	260	126	
10	108	316	341	141	
15 ,	183	307	320	186	
20	213	343	389	236	
25	174	374	468	262	
30	161	361	525	310	
35	252	470	536	265	
40	255	452	572	377	
45	322	456	555	345	
50	-5	414	427	340	
55					

SAFE CAN Test No.	29	, · .					
Receptacle Size <u>Lar</u>	ge	<del></del>	Fu	el Loa	d ½ F	<u>u11 c</u>	of cloth
SAFE CAN Size Lar	ge	Unit	No.	4	Alarm	No.	<u>1C</u>
Empty Wt. (g)194	.8						
Bottom Full Wt. (g) _	500.2						*
Top Full Wt. (g)	545.1						·
Receiver Mike at	180		• •	and _	10	_ ft	from alarm
Time "0" is	30			sec	onds a	fter	ignition
Response Time	20			secon	ds		
Alarm Duration	35			secon	ds		
Fire Extinguished?	Yes						
Alarm Detected	Yes						
Peak Temp. 383°	F	at _	15	sec	9	Senso	or <u>01</u>
Thermocouple Arrangem	ent No	. 4					

Sensor		TEMP °F			
Time Sec.	01	02	03	04	
0	183	237	63	81	
5	164	256	65	114	
10	268	234	63	159	
15	383	206	64	257	
20	. 0	142	65	227	
25	-16	72	63	148	

SAFE CAN Test No.	30							
Receptable SizeS								
SAFE CAN Size Sma	11	Unit	No.	1	Alarm	No.	10	
Empty Wt. (g)	249.3							
Bottom Full Wt. (g)	350.0							
Top Full Wt. (g)	403.0							
Receiver Mike at	180		•	and	10	_ ft	from	alarm
Time "O" is	25			seco	nds a	fter	igni	tion
Response Time	20			second	s			
Alarm Duration	35			second	s			
Fire Extinguished? _	Yes							
Alarm Detected	Yes	. <u></u> -						
Peak Temp. 379	F	at _	10	sec		Senso	r	01
Thermocouple Arrange	nent No.	. 4						

Sensor	TEMP °F					
Time Sec.	01	02	03	04		
0	199	113	69	98		
5	357	124	75	128		
10	379	132	75	182		
15	-4	129	86	167		

SAFE CAN Test No.	31					
Receptacle Size Sma	11	Fu	el Loa	d 12	Full	of cloth
SAFE CAN Size Small	1 Unit	No.	3	Aları	m No.	<u>1D</u>
Empty Wt. (g)	248.7					
Bottom Full Wt. (g)						
Top Full Wt. (g)	407.2					
Receiver Mike at			and _	10	ft	from alarm
Time "O" is	35		_ sec	onds	after	ignition
Response Time			secon			
Alarm Duration		<del></del>	secon	ds		
Fire Extinguished? _	Yes					
Alarm Detected	Yes	<del></del>				
Peak Temp. 504 F	at _	0	sec		Senso	or <u>01</u>
Thermocouple Arrange	ment No. 4					

Sensor	TEMP °F						
Time Sec.	10	02	03	04			
0	504	119	107	109			
5	10	99	126	122			

SAFE CAN Test No. 32	
Recept <b>a</b> cle Size <u>Larc</u>	ge Fuel Load 40 sheets
SAFE CAN Size Large	Unit No. 2 Alarm No. 1E
Empty Wt. (g)296	6.3
Bottom Full Wt. (g)	499.0
Top Full Wt. (g)	547.1
Receiver Mike at	90 ° and 180 ft from aları
Time "O" is	20 seconds after ignition
Response Time	10 seconds
Alarm Duration	35 seconds
Fire Extinguished?	Yes
Alarm Detected	Yes
Peak Temp. 591°F	at <u>5 sec</u> Sensor 04
Thermocouple Arrangemen	nt No. 4

Sensor	TEMP °F							
Time Sec.	01	02	03	04				
0	139	111	206	343				
5	422	163	328	591				
10	12	315	479	526				

SAFE CAN Test No	33				
Receptacle Size <u>La</u>		Fuel Load	d	ream	IS
SAFE CAN SizeLar	ge Unit	No. 4	Alarm	No.	<u> 1</u> F
Empty Wt. (g) 295.2	·				
Bottom Full Wt. (g)	499.2				
Top Full Wt. (g)					
Receiver Mike at	90	$_{}$ $^{\circ}$ and $_{-}$	10	_ ft	from alarm
Time "0" is	25	sec	onds a	fter	ignition
Response Time	10	secon	ds		
Alarm Duration	40	secon	ds		
Fire Extinguished?	Yes				
Alarm Detected	Yes				
Peak Temp. 518°F	at _	0 sec		Senso	r <u>01</u>
Thermocouple Arrangeme	nt No 4				

Sensor	TEMP °F				
Time Sec.	01	02	03	04	
0	518	59	116	236	
5	515	,95	198	304	
10	3	87	156	188	

SAFE CAN Test No.	34						
Receptacle Size			Fue	el Load	d	7_re	eams
SAFE CAN Size	Large	Unit	No.	_4	Alarm	No.	<u> 1D</u>
Empty Wt. (g)	295.1						
Bottom Full Wt. (g	)499.2	2					<del> </del>
Top Full Wt. (g)						·	<del></del>
Receiver Mike at	180		0	and _	10	_ ft	from alarm
Time "0" is	35			seco	onds a	fter	ignition
Response Time	25			secon	ds		
Alarm Duration	42			secon	ds		
Fire Extinguished?	Yes						
Alarm Detected	Yes						
Peak Temp. 463	3	at	15	sec		Senso	r <u>03</u>
Thermocouple Arrang	gement No.	4					

Sensor	TEMP °F				
Time Sec.	01	02	03	04	
0	76	107	309	160	
5	109	99	415	199	
10	123	162	379	298	
15	104	215	463	374	
20	313	195	462	454	
25	-18	216	390	417	

SAFE CAN Test No.	5	
Receptacle Size Si	Fuel Load 1/2 full	cloth
	Unit No. 3 Alarm No.	
Empty Wt. (g) 248.		
Bottom Full Wt. (g)		
Top Full Wt. (g)	406.6	
Receiver Mike at		from alarm
Time "O" is	15 seconds after	ignition
Response Time	20 seconds	
Alarm Duration		
Fire Extinguished?	yes	
Alarm Detected	yes	
Peak Temp. 835	at 15 sec Sensor	r <u>01</u>
Thermocouple Arrangeme	nt No. 4	

Sensor		TEMI	P °F		
Time Sec.	01	02	03	04	
0	211	159	97	55	
5	470	202	128	58	
10	768	184	99	92	
15	835	293	200	97	
20	- 34	185	121	91	

SAFF CAN Test No. <u>36</u> Receptacle Size small fuel Load 4 reams SAFE CAN Size small Unit No. 1 Alarm No. 1D Empty Wt. (g) 247.5\_\_ Bottom Full Wt. (g) 350.1 Top Full Wt. (g) 406.1 ° and 10 ft from alarm Receiver Mike at 90 \_\_\_\_\_ seconds after ignition Time "0" is \_\_\_\_\_35 Response Time 25 \_\_\_\_\_seconds Alarm Duration 43 seconds Fire Extinguished? <u>yes</u> Alarm Detected <u>yes</u> Peak Temp. \_ 918 at \_\_\_10 sec \_\_\_ Sensor \_\_\_04 Thermocouple Arrangement No. 4

Sensor		TEM	P°F		
Time Sec.	01	02	03	04	
0	135	56	58	320	
5	234	60	81	650	
10	257	76	92	918	
15	648	166	139	953	
20	659	243	173	752	
25	461	203	151	563	
30	259	150	117	388	

SAFE CAN Test No.	37		<del></del>	·	
Recept <b>a</b> cle Size _	small	Fue	el Load	4 reams	·
SAFE CAN Size					
Empty Wt. (g) 246.	88				
Bottom Full Wt. (	g) <u>350.5</u>				
Top Full Wt. (g)	405.6				
Receiver Mike at	90	0	and	10 ft	from alarm
Time "0" is $\frac{1}{2}$	.0		second	is after	ignition
Response Time	55		seconds		
Alarm Duration	33		seconds		
Fire Extinguished	? yes				
Alarm Detected					
Peak Temp. 9	71 <sup>0</sup> F	at5	sec	Senso	r <u>03</u>
Thermocouple Arrai	ngement No.	. 4			

Ĩ:

Sensor	TEMP °F				
Time Sec.	01	02	03	04	
0	59	62	472	84	
5	59	65	971	107	
10	83	69	830	309	
15	103	70	749	610	
20	113	74	586	645	
25	111	81	418	807	
30	119	85	629	768	
35	136	91	549	772	
40	140	97	533	782	
45	211	107	469	826	
50	469	203	386	771	
55	16	388	348	698	

SAFE CAN Test No.	38					
Receptable Size						
SAFE CAN Size	small .	Unit No.	3	Alarm	No.	<u>1C</u>
Empty Wt. (g)	247.2					
Bottom Full Wt. (						
lop Full Wt. (g)						
Peceiver Mike at					ft	from alarm
fime "0" is4	0		_ sec	onds af	ter	ignition
Desponse Time						
Atarm Guration						
- re estinguished	? flames p	ut down, bu	ut con	tinued	to s	moulder
77 som Netected 2	yes					_
			3.C	S	enso	r <u>04</u>
Truesco into Arras						

Grandwagle Arrangement No. 4

902	TEMP °F				
1.me .ec. 1	31	02	03	04	
	12	162	288	125	
	16,	171	421	175	
:	2.5	703	510	475	
19	17	286	480	686	
.*0	111)	933	511	1148	
3()	ਤ6	1183	522	974	
40	89	1296	644	1211	
50	32	1033	596	1348	
60	98	697	645	1314	
7.0	139	યક્ષ ઉ	597	1116	
30	162	4,24	753	1153	
4)(j	.209	703	737	941	
!(10)	30.1	961	57R	1022	
$10^{6}$	3	515	406	706	

SAFE CAN Test No. 39 Receptacle Size large \_\_\_ Fuel Load \_7 reams SAFE CAN Size large Unit No. 2 Alarm No. 10 Empty Wt. (g) 297.2 Bottom Full Wt. (g) 500.4 545.2 Top Full Wt. (g) \_\_\_\_\_ 180 10 Receiver Mike at ° and ft from alarm Time "0" is \_\_\_\_15 seconds after ignition Response Time 75 sec seconds Alarm Duration 115 seconds Fire Extinguished? flames were put down, but continued to smoulder Alarm Detected \_\_\_\_yes 30 sec Peak Temp. 1126°F Sensor Thermocouple Arrangement No. 4

Sensor	TEMP °F				
Time Sec.	01	02	03	04	
0	62	259	324	63	
10	70	665	510	409	
20	82	667	694	573	
30	105	1126	757	547	
40	111	923	817	912	
50	186	772	858	995	
55	367	685	626	931	
60	322	643	618	818	
70	75	570	<b>55</b> 8	814	
80	-28	565	581	876	

SAFE CAN Test No. 40	
Recept <b>a</b> cle Size large	
	Unit No. 4 Alarm No. 1E
Empty Wt. (g) 297.1	
Bottom Full Wt. (g) 500.3	
Top Full Wt. (g) 545.0	
Receiver Mike at 90	° and 10 ft from alarm
Time "0" is 80	
Response Time 30	seconds
Alarm Duration 30	seconds
Fire Extinguished? yes	
Alarm Detected yes	
Peak Temp. $450^{\circ}$ F	at 30 sec Sensor 02
Thermocouple Arrangement No.	4

Sensor		TEMP	°F		
Time Sec.	01	02	03	04	
0	200	202	228	111	
5	205	221	255	183	
10	230	266	305	184	
15	260	351	347	227	
20	305	374	391	195	
25	334	328	404	299	
30	43	450	385	307	

SAFE CAN Test No. 41 Receptacle Size large Fuel Load 7 reams SAFE CAN Size large Unit No. 2 Alarm No. 1E Empty Wt. (g) 295.8 Bottom Full Wt. (g) 498.2 Top Full Wt. (g) 546.3 90 ° and 10 ft from alarm Receiver Mike at \_\_ Time "0" is \_\_\_\_\_\_20\_\_\_\_ \_\_ seconds after ignition Response Time 40 \_\_ seconds Alarm Duration 28 sec seconds Fire Extinguished? \_yes Alarm Detected Peak Temp. .802°F at 30 sec Sensor 04 Thermocouple Arrangement No. 4

Sensor	TEMP °F						
Time Sec.	01	02	03	04_			
0	80	79	224	120			
5	82	88	289	125			
10	105	112	337	137			
15	116	133	416	356			
20	121	162	685	465			
25	149	155	589	673			
30	170	149	566	802			
35	392	395	499	609			
40	-6	183	284	335			

SAFE CAN Test No. Receptacle Size \_\_small \_\_\_ Fuel Load 4 reams SAFE CAN Size small Unit No. 3 Alarm No. Empty Wt. (g) 246.5 348.3 Bottom Full Wt. (g) 405.1 Top Full Wt. (g) 10 ft from alarm Receiver Mike at Time "O" is 15seconds after ignition Response Time 15 seconds Alarm Duration 40 sec. seconds yes Fire Extinguished? Alarm Detected \_ yes 326°F 10 sec Sensor 01 Peak Temp. \_ Thermocouple Arrangement No. 4

Sensor	TEMP °F					
Time Sec.	01	02	03	04		
0	204	101	68	63		
5	280	92	69	64		
10	326	91	71	68		
15	12	135	107	88		

SAFE CAN Test No.	43		
Receptacle Size	Small	Fuel Load	12 sheets
SAFE CAN Size Sma	all Unit	No. 1 A	larm No. <u>1E</u>
Empty Wt. (g) 245	. 4		
Bottom Full Wt. (1)	350.0		
Top Full Wt. (g)	425.8		
Receiver Mike at	90	and 1	10 ft from alarm
Time "0" is1	.5	secon	ds after ignition
Response Time2			
Alarm Duration 5	50	seconds.	
Fire Extinguished? <u>y</u>	es		
Alarm Detected y			
Peak Temp. 1071 <sup>0</sup>	F at	5 sec	Sensor 04
Thermocouple Arrange	ment No. 4		

The second seconds and second 
Sensor	TEMP °F							
Time Sec.	01	02	03	04				
0	414	160	172	729				
5	542	672	472	1071				
10	785	636	637	983				
15	581	670	713	948				
20	14	524	455	501				

SAFE CAN Test No.	44						
Receptalle Size Si	mall		1 - 2	nel Loa	d 12 s	heet	S
SALE CAN Size Small		}}r; 1 t	No.	3	Alarm	No.	1 D
Empty Wt. (g) 251.2		= .					
Bottom Full Wt. (g)			~ .				
Fop Full Wt. (g)	430.3			***			
Receiver Mike at	20			and	10	ft	from alarm
Time "0" is 5				sec	onds af	ter	ignition
20							
Alarm Duration 150				secon	ds		
Fire Extinguished?							
Alarm Detected							
Peak Temp. 1319°F		a t	10	sec.	5	enso	r 03
Thermocouple Arrangem	ent No.	4					

Sensor		TEM	P ^F		
Time Sec.	01	02	03	04	
0	52	60	626	79	
5	67	136	1016	233	
10	257	608	1319	658	
15	666	679	1171	775	
20	6	493	604	374	

SAFE CAN Test No.	45				
Recept <b>a</b> cle Size	Large	i i	iel Load	40 shee	ets
SAFE CAN Size Lar					
Empty Wt. (g) 300	).2	-	= ~		
Bottom Full Wt. (g)					
Top Full Wt. (g)	574.5	_			
Receiver Mike at	45 <sup>0</sup>	·	' and <b>9</b>	ft	from alarm
Time "O" is					
Response Time	15		second	ts	
Alarm Duration	45		second	ts	
Fire Extinguished?	yes		-		
Alarm Detected					
Peak Temp. 9	27 <sup>0</sup> F	at 10	sec	Sens	or <u>04</u>
Thermocouple Arrange	ement No.	4			

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Sensor	TEMP °F							
Time Sec.	01	02	03	04				
0	90	91	82	251				
5	401	120	305	709				
10	738	646	576	927				
15	13	513	473	592				
20	14	312	273	346				

MARE CAR Test No.	46							
Beceptacle Size	Large		÷ 11	el (oa	d 40	she	ets	
SALL CAN Size Lar	rge	Unit	No.	6	Alarm	No.	16	
Empty Wt. (g) 29	95.6							
Bottom Full Wt. (g)	515.7							
Top Full Wt. (g)	581.3							
Receiver Mike at	90			and	9	ft	from	alarm
Time "O" is								
Response Time								
Alarm Duration	57			secon	ds			
Fire Extinguished?								
Alarm Detected	yes							
Peak Temp.	1163 <sup>0</sup> F	at _	2	0 sec	S	enso	r 04	
Thermocouple Arrang	ement No.	4						

Sensor		TEM	P⊸F		
Time Sec.	01	02	03	04	
0	103	88	195	215	
5	3 <b>9</b> 8	161	388	613	
10	512	403	746	920	
15	345	792	755	1155	
20	82	902	917	1163	
25	12	511	473	584	

SAFE CAN Test No.	47				
Recept <b>a</b> cle Size					
SAFE CAN Size Sm					
Empty Wt. (g) 255.	3				
Bottom Full Wt. (g)					
Top Full Wt. (g)	435.8				
Receiver Mike at	45	· · · · · · ·	and	9ft	from alarm
Time "O" is	15		second	s after	ignition
Response Time	10		seconds		
Alarm Duration	65		seconds		
Fire Extinguished?	yes				
Alarm Detected	yes				
Peak Temp. 9	49 <sup>0</sup> F at	5	sec	Senso	or <u>04</u>
Thermocouple Arrange	ement No. 4				

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Sensor	TEMP °F				
Time Sec.	01	02_	03_	04	
0	246	73	60	672	
5	710	128	101	949	
10	-12	268	235	520	

CONCENTRATION, ppm	NORMAL I ZED <sup>b</sup>	103 4390	774 4762	30 3010	75 3010	75 1505	452 7526	<b>5 4</b> 0	12 5 0
	CORRECTED	414 17700	3122 19200	121 12139	303 12139	303 6070	1821 30348	v40	12 5 0
00	INDICATED	350 15000	2600 16000	10000	250 10000	250 5000	1500 25000	20 5 0	24 3
G G	COMPOUND	c0 00	200 00	c0 00	00 00 00	00 002	c02	HF HC1 COC1 <sub>2</sub>	HF HC1 COC1 <sub>2</sub>
	TEMP a	N N	N N	N N	N.	N N	S.	70 70 67	51 51 50
,	KELATIVE HUMIDITYA %	A A	A.	N N	X X	N N	N N	17	39
O FOR THOUSE	BAKUMETKIC PRESSURE in Hg	30.13	29.76	29.50	29.50	29.50	29.50	29.78	30.05
	HALON	1211	none	1211	none	1211	none	1211	1211
0.041000	VOLUME ft <sup>3</sup>	248	248	248	248	248	248	896	896
	KECEPIALLE /FUEL	large/ paper	large/ paper	small/ paper	small/ paper	large/ cloth	large/ cloth	large/ paper	large/ paper
, ,		-	2	ю	4	2	9	7	<b>∞</b>

 $^{\text{d}\text{NR}}$  = no correction required.  $^{\text{b}}\text{Concentration normalized to 1000 ft}^3$  volume.

TOXICITY TESTS (Continued)

mdd '	NORMAL I ZED <sup>b</sup>	& F O	840	8 <b>9</b> 0	890	36 13 0	410
CONCENTRATION, ppm	INDICATED CORRECTED	<b>∞</b> ~ 0	∞ <b>4</b> 0	890	890	37 13 0	410
2	INDICATED	25 2 0	22 4 0	26 0	26 6 0	40 a	6 1 0
	COMPOUND	HF HC1 COC1 <sub>2</sub>	HF HC1 COC1 <sub>2</sub>	HF HC1 COC1 <sub>2</sub>	HF HC1 COC1 <sub>2</sub>	HF HC1 C0C1 <sub>2</sub>	HF HC1 COC1 <sub>2</sub>
	JAMPLE TEMPa °F	51 51 51	52 52 52	58 58 58	61 61 61	62 62 55	74 74 69
DC: ATTWE	HUMIDITY a	33	33	25	25	51	37
PADOMETDIC	PRESSURE in Hg	30.05	30.05	30.04	30.04	30.02	30.17
	HALON	1211	1211	2402	2402	1211	2402
100	VOLUME ft <sup>3</sup>	896	896	896	896	896	896
PECEBTACIE	/FUEL	large/ paper	large/ paper	large/ paper	large/ paper	lar <b>ge/</b> clo <b>th</b>	large/ cloth
7507	<b>8</b> 0.	6	10	11	12	13	14

 $^{\text{d}NR}$  = no correction required.  $^{\text{b}}\text{Concentration normalized to 1000 ft}^3$  volume.

TOXICITY TESTS (Concluded)

I, ppm NORMALIZEO <sup>b</sup>	13 8 0	37 12 0	16 10 0	15 13 0
CONCENIRATION, ppm INDICATED CORRECTED NORM	13 8 0	38 12 0	17 10 0	15 13 0
CO INDICATED	24 7 0	70 <sup>a</sup> 11 0	52 <sup>a</sup> 11 0	44 <sup>à</sup> 14 0
SAMPLED COMPOUND		HF HC1 COC1 <sub>2</sub>	HF HC1 COC1 <sub>2</sub>	HF HC1 COC1 <sub>2</sub>
SAMPLE TEMP <sup>a</sup>	62 62 59	67 67 61	65 65 61	66 66 64
RELATIVE HUMIDITY <sup>a</sup>	37	37	25	25
BAROMETRIC N PRESSURE	30.17	30.17	30.11	30.11
HALON	1211	2402	2402	1211
TEST VOLUME Ft3	896	896	896	963
RECEPTACLE /FUEL	large/ cloth	large/ cloth	large/ cloth	large/ cloth
TEST NO.	15	16	17	18
				377

 $^{\rm a}_{\rm NR}$  = no correction required.  $^{\rm b}_{\rm Concentration}$  normalized to 1000 ft  $^{\rm 3}$  volume.

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